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THIS WEEK'S NEWS

SIR HUGH CASSON, R.D.I., M.A., F.R.I.B.A., who was commissioned by Westminster City Council on June 26 as consulting architect for street decorations in connection with the Coronation of Queen Elizabeth II, made his report to the Council on October 9. Brief details of his proposals, together with some designs, appear on p. 496

THE L.C.C. decided on Tuesday to reserve a site of approximately five acres on the South Bank immediately adjoining Waterloo Bridge for the erection of a Science Centre—a new "Burlington House"—which it is proposed should become the home of the Learned Societies, the Patent Office and the Department of Scientific and Industrial Research. p. 514

A FURTHER ARTICLE in our series on church roofing materials deals with the uses of slates on pitched roofs. p. 515

THE LATEST housing summary presented to Parliament on October 2 shows that 17,821 houses were completed in August last, compared with 14,747 in August, 1951. p. 518

A COMPOSITE RESOLUTION on housing, which was debated at the Labour Party's annual conference last week, deplored the Government's building programme. It instructed the National Executive Committee to prepare a plan for the nationalisation of the industry and also to safeguard the interests of tenants by the maintenance of the Rent Restriction Acts. p. 519

TOWARDS LICENSING FREEDOM

A TIDE of feeling runs strongly through the building industry to-day that restrictions on construction should be further reviewed and certain categories of buildings either freed completely of licence control or given a bulk money ceiling within which developers could operate. Such a move would be regarded, in the industry's view, as a further step along the road to complete freedom believed to be the intention of the Minister of Works and the Cabinet, and at the same time help to reverse the fantastic situation where no less than 75 per cent. of all contract work is placed by the State.

Since capital expenditure on construction has always been linked closely with national economic conditions (wrongly so, as some economists believe), the building industry is not rash enough to think that special pleading will win freedom for itself, though a strong case could be advanced. Let the case be argued rather against the background of general industrial production and export by which we support ourselves. That background shows an increasing tendency for the export markets to become more difficult as the sellers' market weakens. Such a trend was to be expected, and the Index of Industrial Production made public last week is no more than confirmation. It is a reasonable deduction, therefore, that if industry is to go on with its vital work of selling British goods in overseas markets, then industrialists must be given every chance to carry out such new buildings or renovations as they need for the task. Such building must include not only structures for manufacture but offices and showrooms for selling. As Mr. Eccles himself said last week, "For some years we have been able to sell almost anything we produced in this country. Now competition increases and salesmanship will be all the more important. . . . Our people are the best salesmen in the world but they must have good premises where they can show their goods to best advantage."

Whence will come the necessary steel and timber for an extended industrial building programme? It is likely that the saving brought about by exports recession may provide the steel; the building trades, it must be remembered, take a relatively small proportion of the total output, and a reduction of 10 per cent. in the steel used in general industry could mean an increase of the order of 30 per cent. in structural sections and reinforcing bars available for building. Timber is clearly going to be a more difficult problem, governed as it is by hard currency restrictions; in spite of the urgent representations made by the National Federation, it seems that the Government does not intend to release additional currency for timber import but rather to spread existing supplies more thinly over the building programme. If this be so, the main hope for more timber lies in keener buying, the slack being taken up by the use of substitutes.

By and large, it would seem that the present time is ripe for action aimed at allowing the building industry greater freedom to make more of its undoubted ingenuity in construction. We repeat a view we expressed early in the summer—that the control exercised by the present high level of building costs is the biggest factor in preventing those inflationary forms of building which, in the national interest, it is vital to restrict.

If the nation could be assured that easing of building controls would not be against but rather in the national interest, what would be the views of the building industry? Architects' views on the subject are known to be divided; while those in private practice almost to a man are in favour of relaxation, their "official" brethren fear that any further licensing freedom may have serious effects upon their authorities' housing and educational programmes. There would be more sympathy with this view were it not that much the same arguments were advanced in June last when the "free limit" was doubled; the facts are that that increase has had no adverse effect. In short, it may well be that if local authority archi-

tects could be assured of materials and labour for their houses and schools, their opposition might well be withdrawn.

Builders would welcome a lightening of the yoke of licensing. London's view that licensing could now be lifted completely is shared by a large part of the country, though it is fair to say that some areas fear that such action would increase the difficulties of smaller builders in getting materials and retaining labour. Generally, it is believed that any such difficulties would be more than compensated by the release of drive and ingenuity, and by the stimulating effect on labour whose production, as the Minister has recently stated, while rising is still only 80 per cent. of pre-war. Materials manufacturers also can be expected to favour a change. The climate of confidence and expansion engendered as a result of Mr. Eccles's consistent encouragement has brought about in less than a year not only a significant increase in production of the principal home materials but, equally important, some reduction in price. Lastly, labour. Building operatives have a stake in security and continuity of engagement; anything which is likely to achieve these ends by increasing the flow of building and reducing its price to the consumer must command the support of the men and their leaders.

At the time of announcing the doubling of the " free limit " at the end of June, Mr. Eccles promised that he would review the position in the autumn. The consensus of opinion in the industry is that both the national position and current building conditions are such that it is now safe as well as sensible to strike off more of the restrictions which are clogging the building machine in its efforts to increase efficiency and reduce cost. The form and extent which such freedom will take are matters for decision by the Minister, but he may well feel that a possible way of approach is to fix a bulk money ceiling in certain classes of building—e.g., industrial work—with a policy of first ready, first served. We should also hope that he will not forget that a really substantial increase in the " free limit " would remove at least one of the obstacles in the way of repair of house property and the conversion by private enterprise of large dwellings into smaller units.

DENSITY OF RESIDENTIAL AREAS

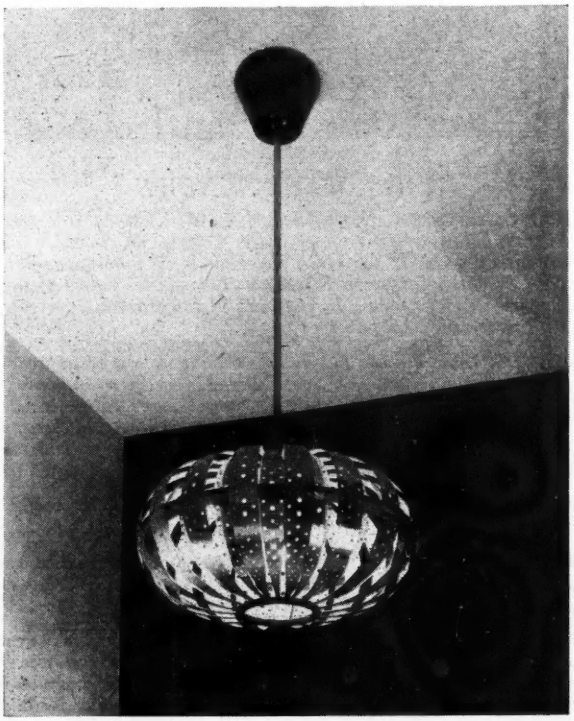
THIS long-awaited memorandum by the technical officers of the Ministry of Housing and Local Government is summarised elsewhere in this issue. We can wholeheartedly congratulate the Ministry on having produced a document containing a great deal of useful information and careful study, although a number of the conclusions derived from it are debatable. Diagrams of statistics and measurements are essential aids to planning, but not to be taken at face value, and never to be studied without remembering that their application must not only be related to local conditions and circumstances but above all to human needs and aspirations.

The background of the Manual is the fact that Great Britain is a small, densely populated country. As the Preliminary Report of the 1951 Census notes, it has " a density which, with a possible exception in the case of the Netherlands, is far higher than that of nearly every other country of the world and is several times as high as that of most of them." In the Manual the conclusion is drawn that " the planner must take it as axiomatic that no more land should be used for urban purposes than is absolutely necessary." Of all urban land uses, residential areas occupy most space and consequently the attempt is made " to define absolute minimum standards of density."

We are all agreed as to the necessity for strict economy in the use of land, but having regard to the wide open spaces in the British Commonwealth, which unless filled by our stock may fall into alien hands, the reflection cannot be avoided that the proposed squeezing to minimum standards may neither be to our own advantage nor to that of the family of nations to which we gave birth. Moreover, one cannot forget the dangers of concentration of population in a country which has been described as " the anchored aircraft carrier for the defence of the West."

Unhappily, no comprehensive Commonwealth policy on the distribution of population has yet been evolved, but one may hope that something tangible will have emerged by the time that the first quinquennial review of our Development Plans arrives. In that happy event, it should be possible to plan the core of the Commonwealth on less concentrated lines and with more elbow-room for the inhabitants.

The main defect of residential development during the inter-war period lay more in the reckless way in which much of it was distributed (control being hampered by fears of compensation) than in its density. Nevertheless, much of it was wastefully laid out and with a woeful disregard to the third dimension. The speculative builder concentrated upon what he thought his customers wanted. The Manual begins by assessing essential human needs, although omitting space for the householder to grow vegetables and food for himself and family, and then translates them scientifically into " absolute minimum standards of density." This scientific analysis of the problem and its translation into possible examples of layout, most cleverly arranged and attractive to the eye and with full regard to the third dimension, is of great value. Moreover, not a few of the cons, as well as all the pros, are set out, and two pungent notes are struck: the first, " A common danger is the temptation to apply average densities to individual sites," and the second, " The price of higher density is better design. It is one thing to lay out houses at six or eight to the acre, it is quite another to design houses and flats in mixed groups at medium or high densities, and ensuring all the time that all the dwellings have privacy, daylight, and good aspect, and that every square yard of land is used to the best advantage." This is a challenge which the town planners, fortified by this Manual, will doubtless gladly take up, always provided they are given the opportunity.



HANGING LAMP, with shade made of metal strip, at entrance of the new Brook-street showrooms for Allied Ironfounders.

NOTES & NEWS

KING GEORGE VI MEMORIAL

THE Prime Minister's eloquent and stirring broadcast in support of the King George VI Memorial Appeal should ensure the active participation of each of us. The sums, large and small, which are already pouring into the Mansion House (on which the Lord Mayor's National Memorial Fund is based) are an indication of the depth of the feeling which exists for the subject of the Memorial.

We are glad to see that the Lord Mayor's Committee have accepted the principle which we put forward in May that the greater part of the fund should be devoted to work for young people, to which has been added the needs of the old. The tangible memorial will take the form of a statue "on a worthy site," and here we hope that our suggestion of the South Bank, with which the late King had particular association, will not be overlooked.

The choice of a sculptor must raise special difficulties. Remembering that King George was a man and monarch of his day and age we trust that the executive committee will resist any temptation to play safe in its choice of sculptor and architect. A preliminary competition, once the site is selected, from which, say, three teams should be selected to submit fully worked out proposals, would be a good way of ensuring that no latent talent was overlooked.

KING'S CROSS STATION

EVEN after a hundred years (it celebrates its centenary on October 14) King's Cross remains probably our best example of a terminal railway station. The plain brick front elevation, with its two great arches in receding planes, dominated by a central clock tower and flanked by solid projecting bastions, is admirably expressive of its purpose. Lewis Cubitt was the architect, who also designed the fine but no longer existing Bricklayers' Arms Station in south-east London. What a pity that the appearance of King's Cross is spoilt by the accretion of ramshackle buildings in front of it! As soon as conditions allow British Railways should make a clean sweep of all this muddle and lay out the area as a formal open space. If that is impossible the buildings should at least be rebuilt to conform with the fine elevation of the station.

TRAFALGAR-SQUARE ADVERTISEMENTS

A RECOMMENDATION that most of the advertising signs on buildings on the south side of Trafalgar-square should be prohibited was considered by the Westminster City Council yesterday (October 9). The proposal was made by the town planning and improvements committee on the grounds that the advertisements are incongruous and out of harmony with, and injurious to, the character of Trafalgar-square and, in certain cases, that they also materially deface the architectural features of the buildings to which they are attached.

Most of the advertisements concerned are illuminated signs.

A RHODESIAN UNIVERSITY

THE CENTRAL COUNCIL of the Rhodesia University Association have plans in hand for the building at Salisbury, Southern Rhodesia, of a university to serve Northern and Southern Rhodesia. The Council's secretary, Dr. Dighton Stammers, M.A., D.Sc., informs us that a panel of associated architects is now engaged on a layout of the 250-acre university site, and that when this master plan is approved a decision will be taken upon what buildings will first be erected. This must depend upon the funds available, at present about £225,000, but it is hoped to start building operations next year when the foundation stone will be laid.

The associated architects are: Messrs. Ayers, Wilson and Parker (Bulawayo); Messrs. Pallett and Price (Salisbury); and Messrs. Driver-Jowitt and Knight (Salisbury).

"THE BUILDER" CARTOON

ACANTHUS is on holiday.

COVENTRY CATHEDRAL

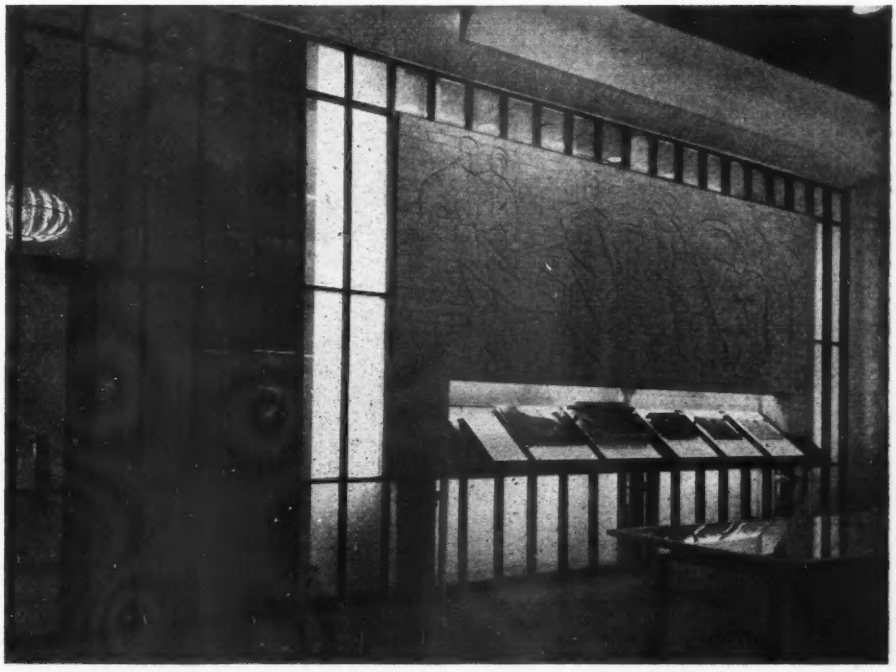
THE DRAWINGS for the revised designs of the new Coventry Cathedral are on exhibition at the Building Centre, Store-street, W.C.1, until Saturday, October 25 (week days, 9.30 a.m. to 5 p.m.; Saturdays, 9.30 a.m. to 1 p.m.).

LANDSCAPE GARDENING

LANDSCAPE GARDENING will be the subject of a talk to be given by Miss Dorothy Stroud at the next meeting of the R.I.B.A. Library Group on October 13, at 6 p.m. Some of the material collected for the Arts Council exhibition on "English Landscape Gardening of the Eighteenth and Early Nineteenth Centuries," which was designed by Miss Stroud, will be on display.

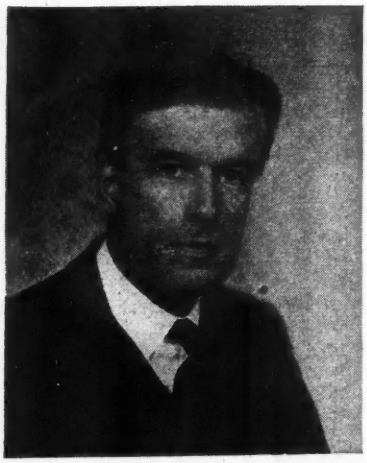
PLANNING APPOINTMENT

YORKSHIRE, West Riding, County Council is inviting applications for the post of Deputy County Planning Officer at a salary of £1,300 to £1,500 a year. Applications should reach Mr. Arthur Bates, County Planning Officer, County Planning Department, 7, Bond-street, Wakefield, by October 31.



SHOWROOMS IN BROOK-STREET, W.

Shown here is a brick mural —"Men of Iron"—designed by Trevor Tennant and placed in the entrance lobby of the new showrooms in Brook-street, W., of Allied Ironfounders, opened last week by Mr. David Eccles, M.P., Minister of Works. Mr. Eccles' remarks are reported on page 518.



MR. ROBERT H. MATTHEW, C.B.E., A.R.I.B.A., who will take up the appointment of Professor of Architecture at Edinburgh University next May, a post which allows him to engage in private practice. Mr. Matthew has been Architect to the London County Council since 1946.

PROFESSIONAL ANNOUNCEMENT

MR. CLIFFORD WILD, L.R.I.B.A., architect, announces that his new address is The Ottoman Bank-chambers, 51, King-street, Manchester 2. Tel.: Blackfriars 5626.

COMING EVENTS

MONDAY, OCTOBER 13

R.I.B.A. (LIBRARY GROUP).—"Landscape Gardening," by Miss Dorothy Stroud. 66, Portland-place, W.1. 6 p.m.

TUESDAY, OCTOBER 14

R.I.B.A.—Exhibition of Irish Architecture. 66, Portland-place, W.1. Daily 10 a.m.-7 p.m. (Saturdays 10 a.m.-5 p.m.). Continuing until October 31.

EAST HAM EDUCATION COMMITTEE.—Opening of "Building Today" exhibition. East Ham Technical College (Dept. of Building), Arragon-road, E.6. 11 a.m. Continuing until October 18, 11 a.m.-9 p.m. daily.

ILLUMINATING ENGINEERING SOCIETY.—Presidential address by Dr. W. J. Wellwood Ferguson. Royal Institution, Albemarle-street, W.1. 6 p.m.

WEDNESDAY, OCTOBER 15

ROYAL SANITARY INSTITUTE.—"Efficiency of Domestic Solid-Fuel Appliances," by Mr. W. F. B. Shaw. 90, Buckingham Palace-road, S.W.1. 2.30 p.m.

THURSDAY, OCTOBER 16

ROYAL SANITARY INSTITUTE.—"Redevelopment Works in Exeter," by Mr. J. Brierley. Guildhall, Exeter. 10 a.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Annual dinner. Dorchester Hotel, W.1. 7.30 p.m.

FRIDAY, OCTOBER 17

TOWN AND COUNTRY PLANNING ASSOCIATION (STUDENT PLANNING GROUP).—"Post-war Reclamation of Land in Holland: Its Effect on Contemporary Landscape," by Mr. Brian Hackett, M.A., A.R.I.B.A., A.M.T.P.I., 28, King-street, W.C.2. 6.30 p.m.

L.M.B.A.—Conference on Building Education. 47, Bedford-square, W.C.1. 2 p.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Presidential address by Sir David Pye: "The Art of the Practical Engineer." I.M.E., Storey's-gate, S.W.1.

FROM "THE BUILDER" OF 1852

Saturday, October 9, 1852

COST OF BUILDERS' TENDERS.—We are every now and then consulted as to the remedy which builders have against those who advertise for tenders, find the result beyond the sum available, and ultimately employ other builders, either on lower tenders or curtailed work, giving no remuneration to any of those who really competed on the terms advertised. To all such we would wish to remark, that they have their remedy in their own hands. They ought to stipulate beforehand with the advertisers that the lowest tender will be accepted, or, if not, avoid the affair altogether.

Westminster City Coronation Decorations

SIR HUGH CASSON, R.D.I., M.A., F.R.I.B.A., who was commissioned by Westminster City Council, on June 26, as consulting architect for street decorations in connection with the Coronation of Queen Elizabeth II, made his report to the City Council on October 9. The theme of Sir Hugh's proposals is not uniformity but the "unity of diversity." All displays should be related to the individual character, both historical and architectural, of the street or area concerned. It is suggested that Street Associations can play a valuable part by devising, with the help of their designers, their own themes and settings. The duty of the consultant will be to see that, so far as possible, these themes are not duplicated; that the points of contact between them are orderly and attractive and that any features erected by the Council assist the appropriate scheme.

Financial considerations prevent such features from being elaborate in character or universally distributed, and concentration will therefore be on focal points, making use of a range of repetitive pictures which can be produced in large numbers. Informal consultations have been held with the Chief Architect Ministry of Works; the Architect to the London County Council; Mr. Philip James, of the Arts Council; and officers of the Regent-street Association.

Sir Hugh puts forward his recommendations under four heads: Processional Route; off the Route; Special Features; and Miscellaneous; they consist basically of three types of feature:—

(1) Treatment of lamp standards (by painting and/or by addition of a decorative feature;

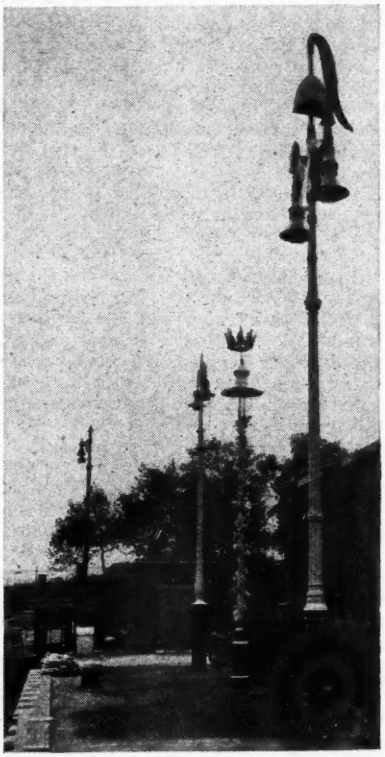
(2) Suspended features (only recommended in certain conditions); and

(3) Special features, at focal points.

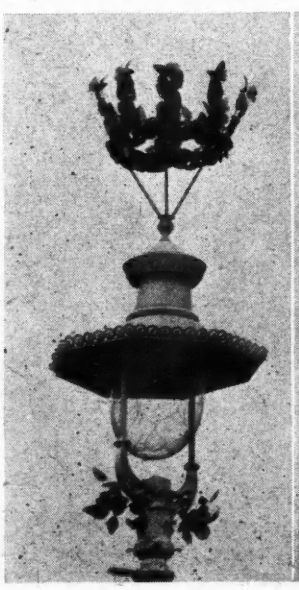
Following are brief details of some of the proposals:—

PROCESSIONAL ROUTE

Parliament-square (Theme: Dominions and Commonwealth). Mainly responsibility of M.O.W. City's suggested contribution is (*a*) "closing the square" by suspended feature across the end of Victoria-street and Tothill-street; (*b*) a triumphal arch or similar feature at the junction of Parliament-street and Parliament-square, placed to enhance the drama of the Abbey approach.



Coronation prototype lamp-posts. Nearest is a white-painted helmet of the Household Cavalry, surmounted by a trailing plume of white and crimson. In the centre is a green coronet set with red roses. Below are details of the designs.



This tentative proposal has been designed by Professor Robert Goodden ; and (*c*) treatment of lamp standards.

Whitehall. (Theme : H.M. Government.) Buildings to be decorated with flags and flower boxes, possibly assisted by a scheme of vertical pennants. Decorative features down the centre, and lamp post treatment.

Whitehall (Trafalgar-square). (Theme : Dominions and Commonwealth.) Decorative vertical treatment of the island carrying the statue of King Charles I.

Cockspur-street. (Theme : The Merchant Navy or the Sea.) Colour scheme of blue and white. Decorative scheme for office facades to be one of "dressing ship" by means of signal flags, etc. Treatment of lamp posts.

Waterloo-place. (Theme : The Armed Services.) To suspend across the three entrances to the square the three symbolic devices of the Army, Navy and Air Force. Flying of the three services flags and the treatment of lamp posts.

Pall Mall. (Theme : The Churchman, Scholar and Administrator.) Suspended garland feature across the opening into Waterloo-place to be repeated at least three times down the street. Rich, sombre colour scheme. Treatment of lamp standards.

St. James-street. (Theme : Tudor Royal.) Main proposal by Mr. Misha Black, to suspend canopies across the street carrying gilt crowns. Flying of heraldic flags only and the treatment of lamp standards.

Piccadilly. (Theme : The Countryside.) To let the trees of St. James's Park and the stands beneath form the main decorative elements, assisted by treatment of lamp standards.

Hyde Park. Responsibility of M.O.W. Treatment of group of lamp standards at Hyde Park Corner.

Marble Arch. Arch to be decorated by M.O.W. Possible heraldic suspended feature between the Odeon and Cumberland Hotel.

Oxford Street. (Theme : Industry and Commerce.) To line street with masts at intervals carrying enlarged versions of eighteenth-century tradesmen's signs and the treatment of lamp standards.

Oxford Circus. (Theme : Tudor Rose.) The placing of four suspended decorative features to close, at high level, the vistas down Oxford-street and Upper Regent-street.

Regent-street. (Theme : Tudor Rose). Theme already worked out by Street Association. Treatment of lamp standards.

Piccadilly Circus. L.C.C. be asked to design a decorative treatment for the protective hoarding to Eros and lamp standards to carry a ring of lanterns.

Haymarket. (Theme : Festive). Fixing decorative features to lamp standards.

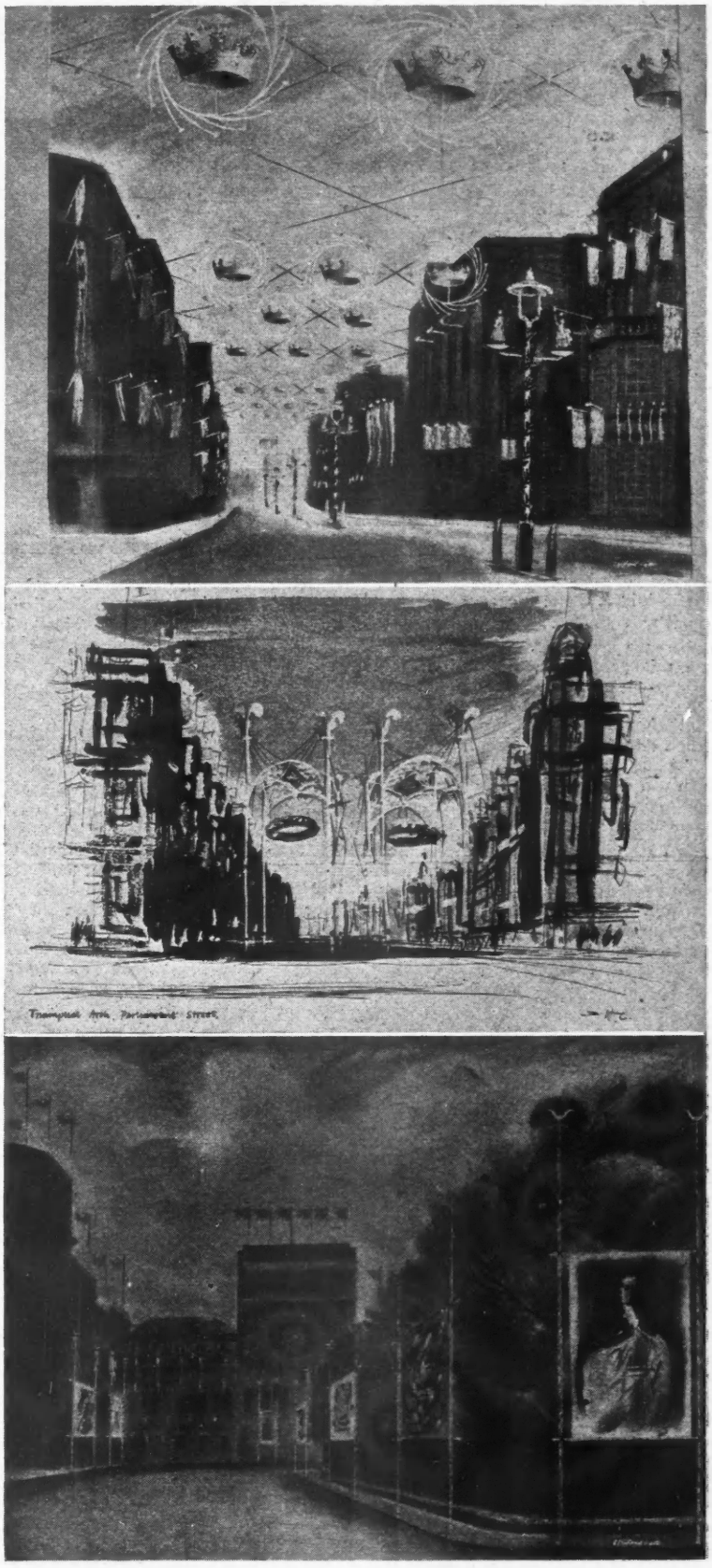
Further decorative schemes are to be devised for certain roads and squares off the route.

Other proposals for the area include :

"Boundary Stones" to be set up at the principal demarcation points where road conditions permit ; the painting in gay colours of the temporary hoardings, barricades and other protective devices.

Associated designers are Misha Black, O.B.E. (St. James's-street and St. James's-square) ; James Gardner, O.B.E., R.D.I. (Strand) ; and Robert Goodden, R.D.I., A.R.I.B.A. (Parliament-street Arch). Assistant designers are Sheila Stratton and Peter Miller, A.R.I.B.A.

Messrs. Powell and Moya, AA.R.I.B.A., are to prepare a scheme for the decoration of the glass tower at the Pimlico Housing Estate.



THE ILLUSTRATIONS. At top is the scheme of decoration of St. James's-street. Centre : Design for the Triumphant Arch, Parliament-street. Below : Scheme for decoration of St James's-square.

A New Approach to Criticism

2.—BEAUTY AND THE HUMAN BODY

By ERIC AMBROSE, FRIBA

IT was not until 1757 that the Scotsman, Hume, in his essay "The Standard of Taste," raised any serious doubts concerning accepted classical belief that beauty was inherent in the *object*, and blew a great blast of fresh air across the centuries-old controversy. "Beauty," said Hume, "is no quality in things themselves; it exists purely in the mind which contemplates them. Each mind perceives a different beauty. To seek the *real* beauty is as fruitless an inquiry as to seek the real sweet and the real bitter."

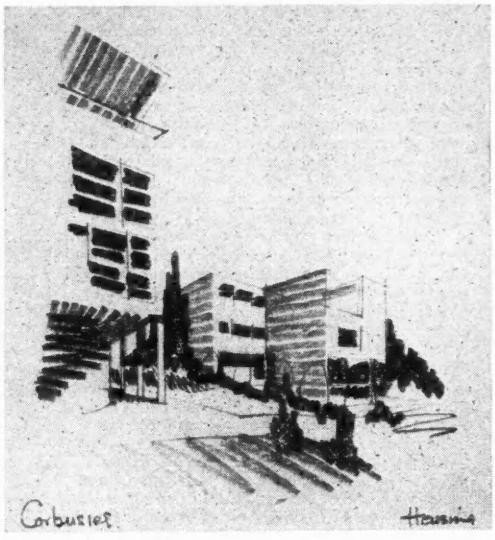
These are words which ought to be engraved over the door of every school of architecture in the kingdom.

Then Hume gave the final *coup de grace*. "To reduce every expression to geometrical truth and exactness would be contrary to the law of criticism because it would produce a work which by universal experience has been found the most insipid and the most disagreeable."

The false charge of the Ancients, the Renaissance copyists, was thus answered by a thinker 200 years ago. It is the resuscitated architecture, the architecture of the column and decorated capital with its strictly governed proportions of frieze, metope and cornice, which is the architecture of mathematical formulae and which can only flourish amongst a people able to accept the philosophy of an ancient outmoded age.

Lord Kaines took the field four years later with the assertion that there are certain proportions which please the eye, as in music there are certain proportions which please the ear, so that in both, equally, the slightest deterioration from the precise proportions is disagreeable.

We may at once ask "Whose eye, and whose ear?" Will every Japanese ear delight in the music of Beethoven or Britten? Will a European architect delight in the beauty of the pagoda? If Kaines's argument is in fact correct, it would seem that progress and change in the musical and visual arts can never take place, for any deviation from accepted rules would result in a disagreeable reaction. That there is *seeming* empirical proof of this fact cannot be denied, for when Wagner produced his new musical "proportions" the audience would willingly have strung him from the chandeliers, whilst, to-day, Bartok is probably spared a similar antagonism because his auditors are able to turn a knob and dissipate their annoyance with a soothing round of Jive. We shall, however, see later on wherein lay Kaines's error.



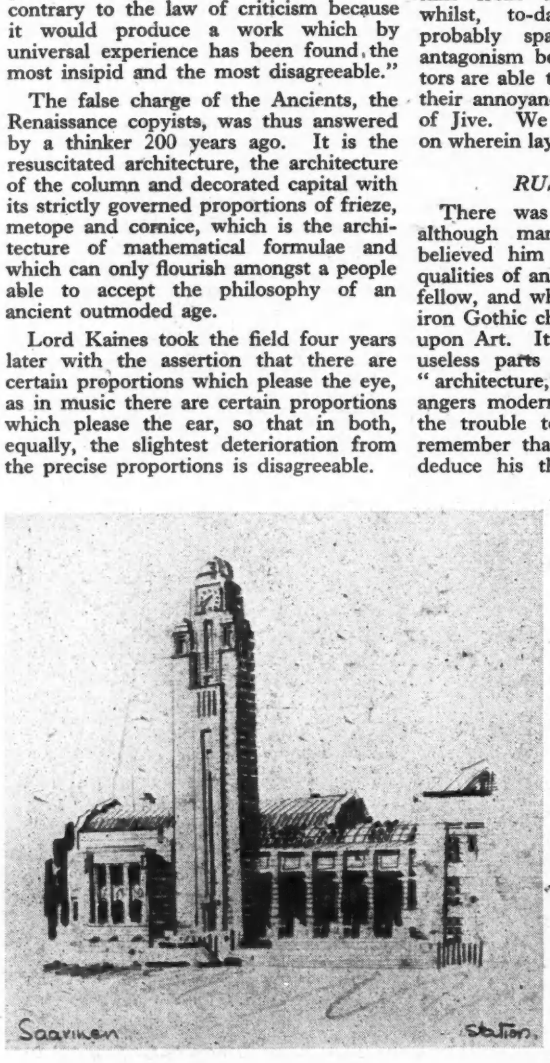
"As Darwin pointed out . . . many . . . structures have no relationship to the habits of life of the species."

RUSKIN'S VIEWS

There was a man called Ruskin—although many of his contemporaries believed him to be endowed with the qualities of an archangel. He was a busy fellow, and when not designing wrought-iron Gothic churches, lectured and wrote upon Art. It was he who said that the useless parts of a building constituted "architecture," and, although this angers modern architects when they take the trouble to read him, we ought to remember that the philosopher tends to deduce his theories from the body of material he finds around him!

But Ruskin was not always saying funny things, for he was essentially a serious man. "Possible proportions," he wrote, "are as infinite as possible airs in music, and it must be left to the artist to invent beautiful proportions." Although we are not offered a definition of "beauty," at least we obtain an admission that the method of arriving at beauty has not been laid down immutably for all time by previous thinkers, writers and practitioners.

Despite the work of Hume, which ought to have stopped the philosophisers from continuing to seek a mathematical formula to express beauty existing in the solid dimensions of architecture, many have continued to seek the philosopher's stone.



"Architects have ceased to measure the work of the past with a foot rule."

"HARMONIC RATIOS"

In 1878, Pennethorne wrote about "Harmonic Ratios" and Hambridge followed him as late as 1924. Zeisin, in 1854, discovered the "Golden Section" as the central principle in the Universe, whilst Wolff found it in the proportions of the hexagon. Lind, in 1921, isolated it in the pentagon; Moessel, in 1931, in the circle, and Viollet-le-Duc and Dehio by simple triangulation. Since Vitruvius plumped for the square it rather seems that only the octagon has been left out in the cold—or am I guilty of a sin of omission?

It has been said that the true artist does not seek to explain his works by philosophical references but allows them to speak for themselves. In the past nothing was further from the truth, for whilst the *creators* of classical architecture were free to develop their ideas, as soon as they had achieved fruition, philosophers wrote down rules evolved from a meticulous mathematical study of those works for others to follow.

To-day, when architects have indeed ceased to measure the works of the past with a foot rule in order to understand their successful appeal, other proscribing rules and regulations appear. Design is often the secondary consideration, and before the architect can put pencil to paper calculations must be made by a chartered accountant, rough sketches of ground coverage put before Ministries, and means of escape from the building considered before any conception of the building is formulated. Whilst economy of means must always play such an important part that it is inseparable from the larger problem of design, choice of materials is made not according to suitability, or economy, but to the availability of substitutes delivered to the site by a contractor turned proud scavenger.

MAN AS THE BASIS OF DESIGN

The human body is accepted as the prototype of an ideal in all forms of art, and more particularly in the three dimensional art and technique of architecture. We may find fault with certain details of that body, and, as Darwin has pointed out, many of its structures now have no direct relationship to the habits of life of the species, but by and large we have a wholesome respect for that body. If we apply to it Vitruvius's three criteria of Firmness, Commodity and Delight, we find, of course, it answers the demands, which is not very surprising, for they were deduced from the body in an effort to explain its attractiveness!

Now it is possible to deduce three criteria, three concepts to explain why man finds certain works of architecture satisfactory and to which the architect must always conform in every age, if he is to produce successful works of art.

Those criteria are based, as we shall show, upon a natural law governing man and the universe. We may state them very simply as:

(1) Fitness for purpose.
(2) Logical expression of structure.
(3) An aesthetic of unity, dignity and grandeur.

Since the universe is governed by laws we term "natural" and the integration of man has come about as a result of those laws, it is not surprising that man should have accepted them, unchallenged, for every production of man-made art, whether in the field of architecture, sculpture, music or literature, for even the euphony of poetry is bound by a framework and an obedience to the rules of rhythm and metre.

In this latter connection, Mr. Trystan Edwards, in his brilliantly expounded "Grammar of Design," explains the rules which seemingly govern the aesthetic, by showing their relationship to literary construction. Literature, however, is an art, its rules man-made and based upon the ideal of man created in a divine image. If the rules thereby induced by Edwards hold good, it is not because they obey the rules of literature, but because they present a basis for acceptance of the human body as a standard of aesthetic appreciation. When, however, the aid of nature is invoked by Edwards to prove that *she* adheres to the rules, and although this in no way detracts from the effectiveness of his theory, Edwards is employing *a posteori* reasoning in presenting cause for effect.

A STANDARD OF BEAUTY

The theory that the human body forms a standard of beauty is not of course new, for we have shown that Vitruvius pointed out a proportional relationship. Throughout the Middle Ages writers were engrossed with the idea, but psychology and the other sciences which deal with the mind had not yet been enabled to present their findings, so that the Ancients saw the body merely as a mystical part of the universe based upon magic numbers. To such lengths did the medieval thinkers go in order to prove their assertions, that one, Pacioli, stated that without the human body it would have been impossible to achieve the basis of all design—the circle and the square! Not one word is spoken of the human mind, but the body is examined minutely for hidden ratios since God has revealed his innermost secrets to that body by creating it in his own image.

The medieval philosophers were unable to escape from this symbolism, and students of Freemasonry will not be slow to recognise it in those parts of their ceremonies which were evolved as late as the 17th and 18th centuries.

(*To be continued*)

PRESERVATION OF CHURCHES

Trust to Raise £4m. Formed

THE formation of the Historic Churches Preservation Trust was announced on October 1. Its main task will be to raise £4m., needed over the next 10 years to supplement the efforts of parishes in putting their churches in good repair.

The Queen has become Patron of the trust and the Duke of Edinburgh, president.

The trust has been set up on the recommendation of the Repair of Churches Commission appointed in June, 1951, by the Church Assembly. The report was received by the Church Assembly on June 19, 1952, and resolutions were passed unanimously agreeing to its main recommendations.

The Archbishops of Canterbury and York were invited by the Church Assembly to appoint the trustees. They have agreed to serve themselves, and the Archbishop of Canterbury will be chairman of the trustees.

The secretary of the trust is Lieutenant-Colonel D. L. Searle, who has been since 1948 organising secretary of the Bishop of London's Reconstruction Fund. The offices of the trust are at Fulham Palace, London, S.W.6. The trustees will make arrangements for a national appeal for funds to be opened shortly. They will also promote the formation of county trusts having similar aims.

MR. IVOR BULMER-THOMAS, who was chairman of the Repair of Churches Commission, in a statement accompanying the announcement of the formation of the trust, said: "Once the accumulation of repairs has been made good, we have to ensure, so far as is humanly possible, that they [the churches] are kept in good repair thereafter. The essential steps have already been taken. The trust will give grants only to churches that have their repairs done by or under the supervision of a specialist architect in this class of work, and in future, under powers that are now being sought by the Church Assembly, all churches will be inspected by a qualified architect once every five years."

The Trustees

The trustees, other than the Archbishops of Canterbury and York, are: the Prime Minister, Mr. C. R. Attlee, the Lord Chancellor, the Speaker of the House of Commons, the Governor of the Bank of England, Lord Salisbury, Lord Crawford and Balcarres, chairman, Royal Fine Art Commission, Lord Scarbrough, Lord Halifax, Lord Jowitt, Lord Esher, chairman, Society for the Protection of Ancient Buildings, Lord Kemsley, Lord Ammon, Colonel J. J. Astor, Sir Richard Hopkins (hon. treasurer), Sir Donald Somervell, Sir George Schuster, Mr. Arthur Deakin, Trades Union Congress, Sir James Mann, president, Society of Antiquaries, the Dean of York, the Very Rev. E. Milner-White, Mr. W. H. Godfrey, Mr. L. J. Cadbury, Mr. Edward Maufe, Mr. Ivor Bulmer-Thomas (chairman, executive committee), Mr. W. I. Croome, Central Council for the Care of Churches, and Mr. Raymond Richards, chairman, Ancient Monuments Society.

CORRESPONDENCE

BUILDERS' CONFERENCES AND TENDERING

To the Editor of *The Builder*

SIR,—Sir Alfred Hurst, the chairman of the London Builders' Conference, has stated in the Press recently that his "fair price" scheme (i.e., the raising of the builder's preliminary prices by the chairman of the Conference) has been applied since the war in less than one in 500 cases (although a short time previously he had stated one in less than 100 cases). In either case, it is apparent that the idea which Sir Alfred wishes to put over is that these price adjustments are now very seldom carried out, but when one bears in mind the statement also made by him that the activities of Builders' Conferences cover the whole of the country, it must follow that the number of jobs put out to tender and with which this builders' organisation deals, must be considerable.

So in order to clear the air on this very important subject, will Sir Alfred be so kind as to tell your readers:—

(1) The number of jobs dealt with since the war by the Builders' Conferences.

(2) The number of such jobs where the preliminary prices of the builders have been adjusted to a "fair price."

(3) The sum total of the adjustments so made, *i.e.*, the differences between the preliminary prices and the adjusted prices.

(4) Whether the office records of the Builders' Conferences may be inspected to justify any figures given.

S. H. LOWETH [F.R.I.B.A.]

Westways, Bearstead,
Kent.

CONTROL OF DESIGN

To the Editor of *The Builder*

SIR,—The Maidstone case has now been decided by the Minister of Housing. He has shown a more liberal outlook than either the Council or Mr. Smith (the owner of the estate on which the house, subject of the Town Planning inquiry, had been planned). This is most reassuring and there have been other cases in recent months in which his views have been encouraging. All clients, however, will not spare the time or money in making appeals. What is then to be done?

In your editorial (*The Builder*, September 5) you appeal for the use of the panel system and for restraint on the part of architects. With design in the hands of an expert team the result can be technically correct yet woefully monotonous or, I suggest, imaginative and exhilarating. Do not therefore let us suppose that the employment of the highly qualified will guarantee the result. On the other hand, if untrained people make the decisions, they are in the unfortunate position of Mr. Ashlin, the Borough Building Inspector and, one suspects, the results will be more towards the monotonous.

If we are to preserve the freedom of the client and his architect, and, what to many is also important, the infinite variety

of style in building, the Town and Country Planning Act should be amended to exclude control of elevation. The relative positions, uses and sizes of buildings should be controlled to safeguard the reasonable enjoyment by adjoining owners, and these are matters of fact. The external appearance is one of taste and to attempt to enforce the law in this regard will lead and has led to confusion, disillusionment and bitterness.

R. P. SHANNON [A.R.I.B.A.]

22, Kingsmead-avenue,
Worcester Park, Surrey.

⁂ The Minister's reasons for allowing the appeal are given on page 514.—ED.

REGIONAL HOUSING PRODUCTION BOARDS

To the Editor of *The Builder*

SIR,—After reading the interview your special representative had with Sir Percy Mills, K.B.E. (*The Builder*, October 3), and with recollections in my mind of a recent meeting of the Board in the North West which I attended, I feel that I must make some observations.

None of the statements made from the top table at that meeting gave much help as to how production was to be increased, and questions from the floor were mainly irrelevant and disclosed mistakes in administration or procedure among the various local authorities. To my mind it was a wasted afternoon.

We are trying all kinds of trivialities or palliatives to speed up house building whereas there are three fundamentals which alone will do it, namely (1) harder work on the part of the operatives, (2) better organisation and utilisation of more plant by the employers and (3) an unrestricted flow of materials. (1) and (2) are possible, (3) is problematical. On Sir Percy's own showing, timber per house is likely to be reduced as the annual number of new houses rises towards its target; in short, we are trying to build too many houses with the resources available. A saner and more businesslike attitude on housing would be taken by the public generally and by local authorities in particular, if the problem could be removed from the party political arena. There are far too many societies, associations, organisations, committees, etc., telling local authorities what to do, and too few people to do it. Production Boards are just another stunt!

CHARTERED MUNICIPAL ENGINEER

North West.

CLOSE TENDERING

To the Editor of *The Builder*

SIR,—We would respectfully suggest that the list of tenders received by Mr. G. Grenfell Baines, as set out in your issue of September 26, is not due to detailed specifications and working drawings, but to the combines in the building industry.

We know of many cases where we have sent out specifications and requested competitive estimates and as many as six have been exactly the same figure.

We, as contractors, would feel much happier if there were a greater variation in estimates. The industry is suffering from combines and the sooner they are disbanded the better for all concerned.

W. R. HERBERT,
F. J. Moreton and Son, Ltd.

171, Gipsy-road, S.E.27.

TROPICAL HARDWOODS

To the Editor of *The Builder*

SIR,—With due respect to Mr. T. J. Price, I am afraid that I find the paper entitled "Timber Preservation: 'Enormous' Losses of Tropical Hardwoods Before Conversion," reported on page 204 of your issue of August 8, 1952, extremely misleading in certain respects. It is implied throughout that borer damage in tropical hardwoods occurs after the tree has been felled. This is a popular misconception held by many members of the Hardwood Trade who have not been present at the felling of tropical hardwoods, have not seen actual chips straight from the axe which contain borer holes, and have not seen borer holes on the axed end of the tree trunk before the tree has actually fallen.

In other words, borer attack very commonly occurs in the living tree and no amount of borer repellant preservative applied after the tree has been felled, removal of bark, quick extraction and so on, is going to stop these borer holes. I readily admit that there are certain species, Raman (Gonystylus spp.), for instance, in which I have never seen borer holes in the living tree, i.e., while the tree is being felled, but which is extremely attractive to borers as soon as it is felled, and I certainly agree with Mr. Price's remarks, and recommendations in respect of such species. But from 20 years' practical experience as a Forest Officer, who has been present at the felling of many hundreds of trees, such species are in the minority (in Malaya, at any rate), and, if the heartwood of other species is attacked by borers at all, such attack very often occurs in the living tree. Borer attack in the sapwood only, which is much less serious, is another matter entirely, and commonly occurs in any species shortly after felling if preventative measures are not taken, or the logs are not extracted from the forest quickly.

Examples of Malayan timbers whose heartwood contains borer holes to a greater or less degree, and in which the writer has seen borer holes at the time of felling, are as follows:

CHENGAL (Balanocarpus heimii): The most expensive and sought-after Primary (naturally durable) hardwood in Malaya; heartwood usually riddled with Ambrosia pin-hole borer holes; almost impossible to obtain supplies free from such holes. In spite of this, the timber is extremely resistant to fungus, termite and other insect attack, and is one of the strongest and most durable timbers in the world.

KAPUR (Dryobalanops spp.): A very popular medium heavy hardwood; heartwood very frequently contains scattered Ambrosia pin-hole borer holes; percentage of sawn timber that is "worm free" may be as low as 25 per cent.

MERANTI—Seraya (Soft *Shorea* spp.): A very popular and common light hardwood timber; the heartwood of Dark Red Meranti often contains scattered Ambrosia pin-hole borer holes; that of the other Merantis often contains scattered Ambrosia shot-hole borer holes.

Because borer holes in such timbers are unavoidable defects which occur in the living tree, in the same way that knots are unavoidable defects, provision is made in Grading Rules for the inclusion of such holes "*even* in so-called Prime grades," to quote Mr. Price. But they are strictly limited in the higher grades (as are knots), and I submit that if 11/12ths of the surface area of a board is free from all defects (which includes borer holes, knots, sapwood, bark pockets, etc.) it is indeed Prime. In both the Malayan Grading Rules and the NHLA Rules 11/12ths (or 10/12ths) of the surface area of each piece (according to size) must be free from all defects in a limited number of clear face cuttings to grade as Prime (=FaS in the NHLA), and there is also provision for PHND (Pin Holes No Defect) in both Rules. In the Borneo Grading Rules "one shot-hole or two pin-holes three feet apart, appearing on one surface only, *are not to be considered a defect*" in Prime quality. I know of no recognised Grading Rules which require that any grade should be entirely free from borer holes and in America, where the grading of timber is probably more highly developed than in any other country in the world, the following sentence appears in the NHLA Grading Rules: "the following specifications are excluded and will not be certified to by the Inspector . . . specifications requiring lumber to be entirely free of worm-holes. . . ."

C. O. FLEMMICH,

Senior Assistant Conservator of Forests, Malayan Forest Service.

Forest Office, Fullerton Building,
Singapore, 1.

CHURCH ROOFING MATERIALS

To the Editor of *The Builder*

SIR,—Churches are usually cold places. Perhaps they should be. Violent trembling of the limbs certainly does tend to keep one awake during the sermon, and it may have been a consideration of this kind that has prompted the Roofing Committee to suggest that felt is not required beneath a shingle roof.

The Coal Board and less austere Christians would, however, be grateful if the architect provided a good thick sarking felt beneath the external roof covering; the possession of a heavy overcoat does not necessarily preclude the wearing of trousers.

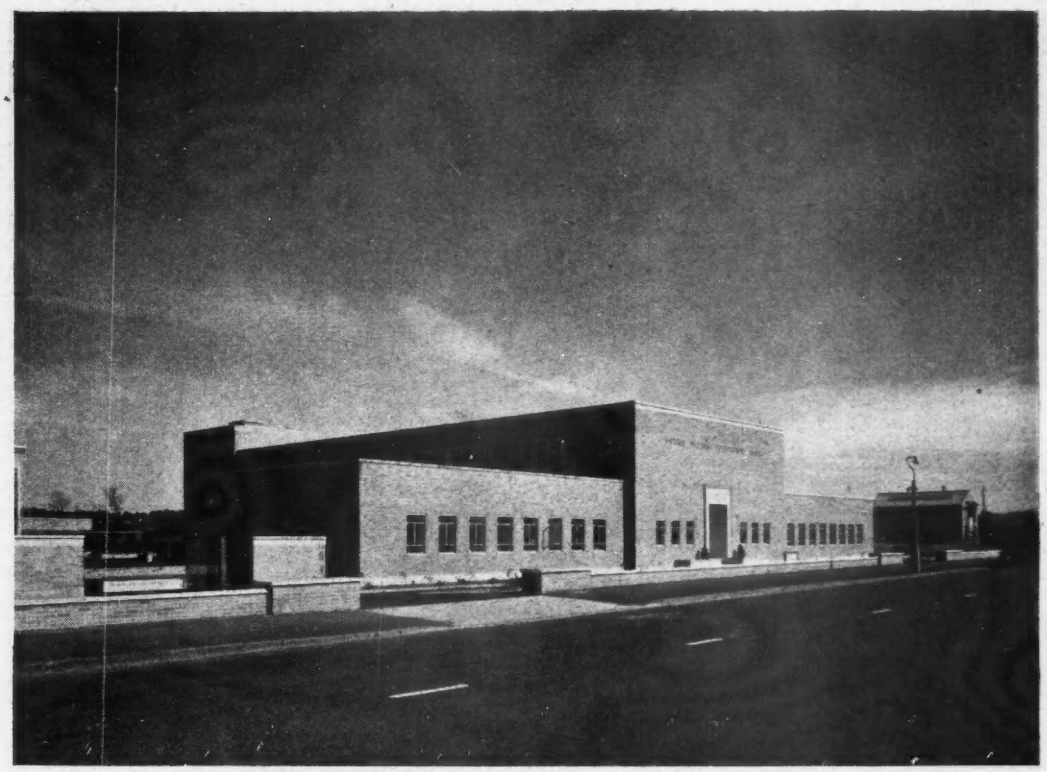
The Roofing Committee state that the use of felt beneath cedar shingles "is definitely detrimental, as it makes the circulation of air to the underside of the shingles impossible and condensation will rot the timber."

This is absolutely untrue if the Roofing Committee is referring to the traditional under-slatings—flax, jute and hair felts—known as sarking felt (black) or inodorous felt (brown). When these are employed no condensation can occur: their open structure permits the timber to "breathe."

When there is a need for economy in a building the first casualty is, of course, roof insulation—it doesn't show!

W. Y. ROGERS,
Engert and Rolfe, Ltd.

Barchester-street, E.14.



General view of the laboratories from St. Andrew's-road, showing entrance to the car park and goods entrance on the left-hand side. The foreground is laid out with paving and beds planted with flowering shrubs.

RESEARCH LABORATORIES, AVONMOUTH

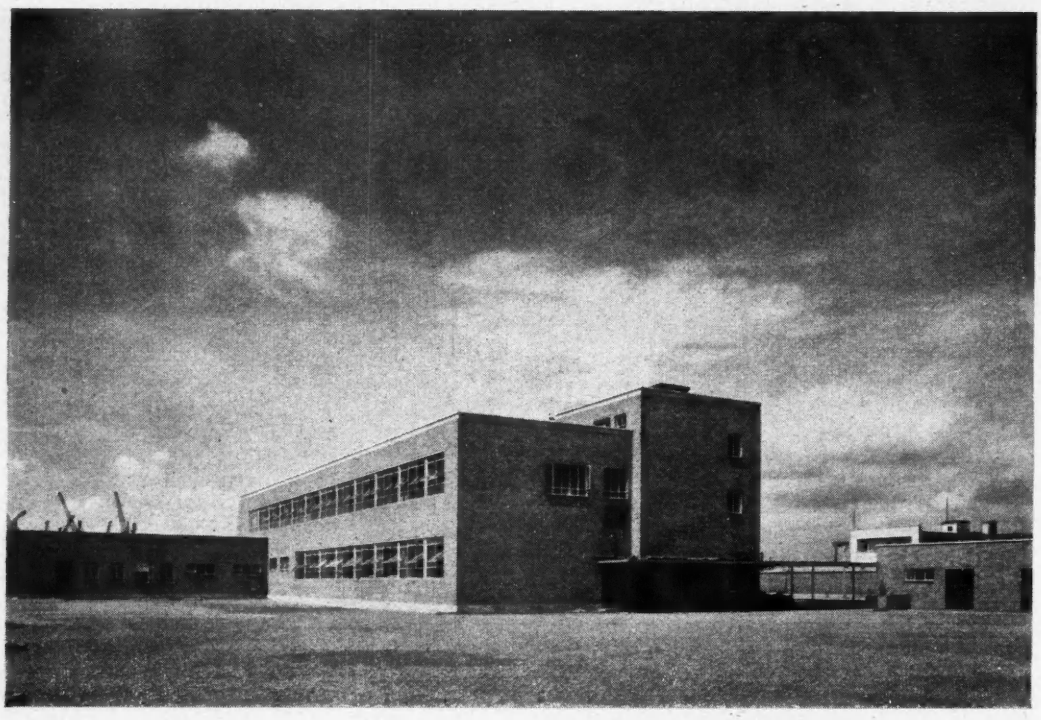
For the Imperial Smelting Corporation, Ltd.

SIR PERCY THOMAS AND SON, ARCHITECTS

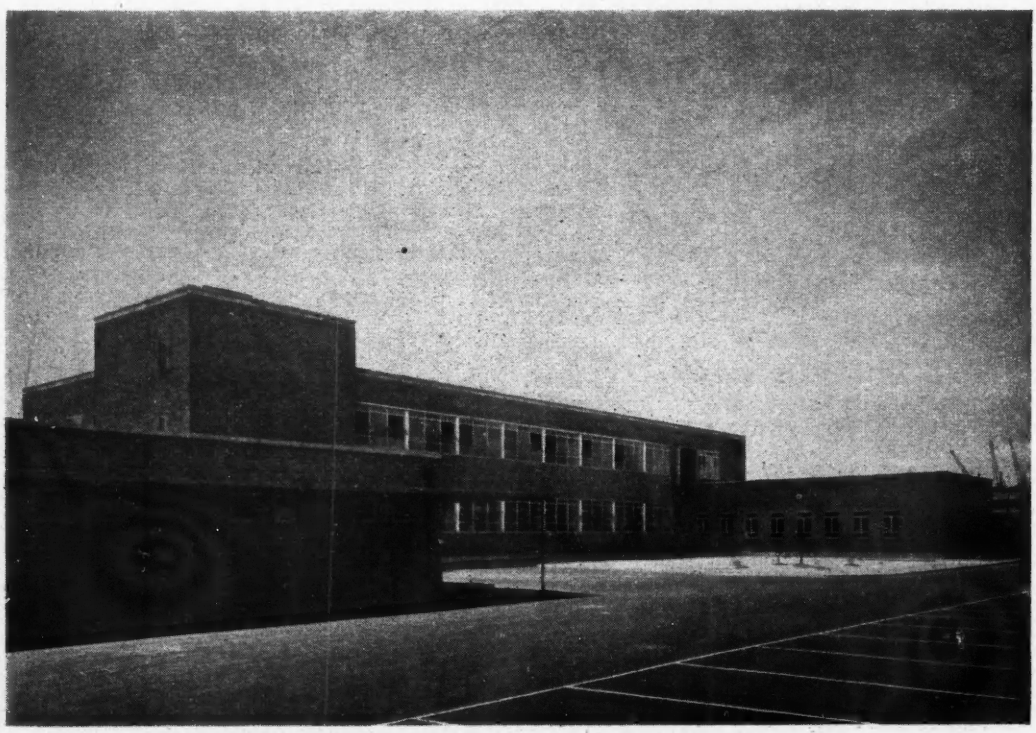
UNTIL these laboratories were built, research had been carried out by the Imperial Smelting Corporation in various factories in different parts of the country. It was decided to construct the new laboratories in a position close to the main factory at Avonmouth, and there to make provision for areas for research in all matters affecting the company's production which can be grouped under four main headings, as follows :—zinc ; zinc alloys ; paint pigments ; and sulphuric acid production. Each of these main headings covers a group of laboratories dealing with the various processes and by-products.

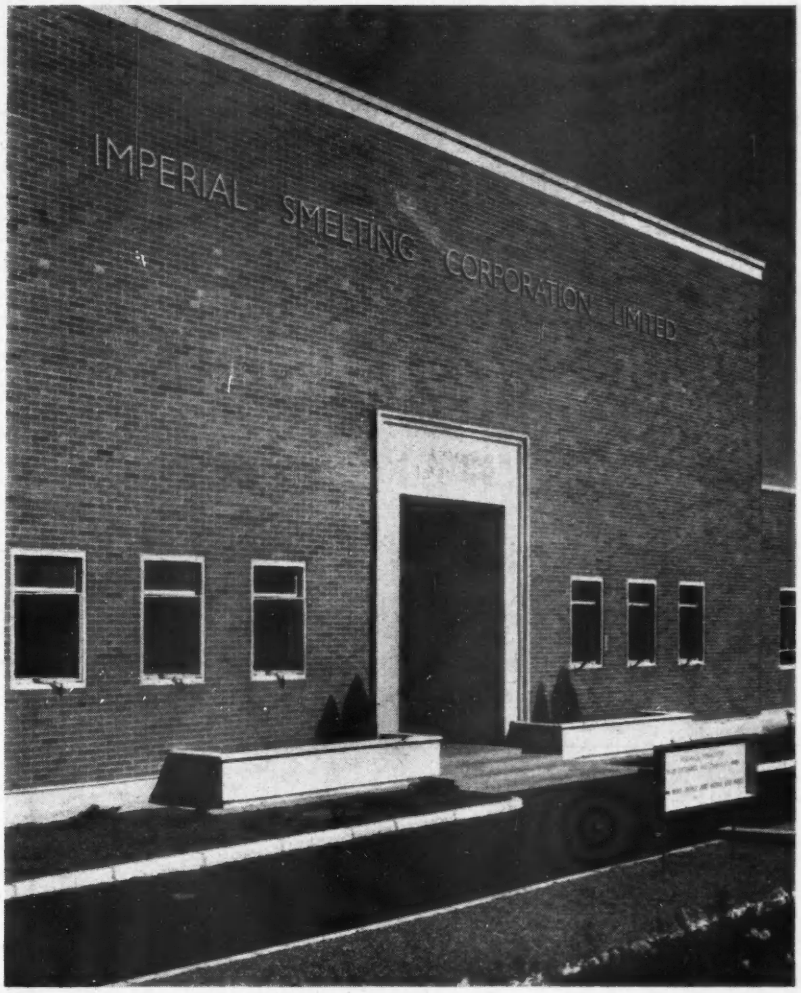
Site and Plan. The site was an area of low-lying land about a half mile from the main factory, and having a frontage on to St. Andrew's-road. The site was large enough to allow the designers to bear in mind the possibility of future extension, and also to make provision for space for the building of pilot plants at the back of the site, if this were found necessary. The design substantially consists of a main storey laboratory block running east and west with two single-storey wings at the west end which contain offices and library. There is also a single-storey store building at the back of the site which contains store-rooms, workshop and the electrical sub-station, etc. The laboratory block is developed on a modular unit of 12 ft. by 24 ft. deep. The individual laboratories vary from one to four modules, and face either due north or south with cross ventilation and light through clerestory windows on the first floor. Those laboratories facing due south have internal sun blinds. Writing rooms are provided, opening off the various laboratories, and provide in each case space for four men. In the wings, which compose the administrative section, there are separate offices for senior staff, typists' room, conference room, library and also lavatory and cloakroom accommodation. It is anticipated that the total number of people employed in the building will eventually be about 120.

Construction. Due to the low bearing capacity of the alluvial soil, wide-spreading T-foundations were used, and the main two-storey block structurally isolated from the single-storey side wings. A standard steel frame, concrete encased, is to be used for the main block, and load-bearing brickwork for the side wings. Floors and roof are of reinforced concrete, the laboratory headroom being 12 ft. and the offices 9 ft. 6 in. The roof over the first-floor main corridor is dropped to 8 ft. headroom, so that clerestory lighting can be used for the rooms on either side. The stores building is of load-bearing brickwork and is linked to the laboratories by a concrete covered way. Stone dressings are in Portland stone, with York stone steps and perimeter paving.



The laboratories from the east, showing covered way to the stores building on the right-hand side of the photograph. The site is an ample one, allowing plenty of space for future extensions and the construction of pilot plant. Below : Laboratory block from the north, showing car park and stores building.





Detail of the main entrance. The brickwork is multi-coloured facings with cream pointing and the main entrance doorway, flower boxes and window surrounds are in Portland stone. The margin round the building and the steps are in York stone.

Internal finishings are as follows: laboratory and office floors—plastic tiles; ceilings—heat-resisting plaster; walls—hard plaster, painted; main entrance hall and corridors—cork composition tiles, walls and ceilings as laboratories.

Lighting. Daylighting to the laboratories is by large areas of glazing occupying the whole wall space above furniture level. First-floor laboratories also have clerestory or top lighting. Offices have individual windows and corridors have borrowed lights on the ground floor and saucer dome lights on the first floor. Artificial lighting is by standard fluorescent units in the laboratories and offices, and tungsten in hall, corridors, library, conference room and lavatories.

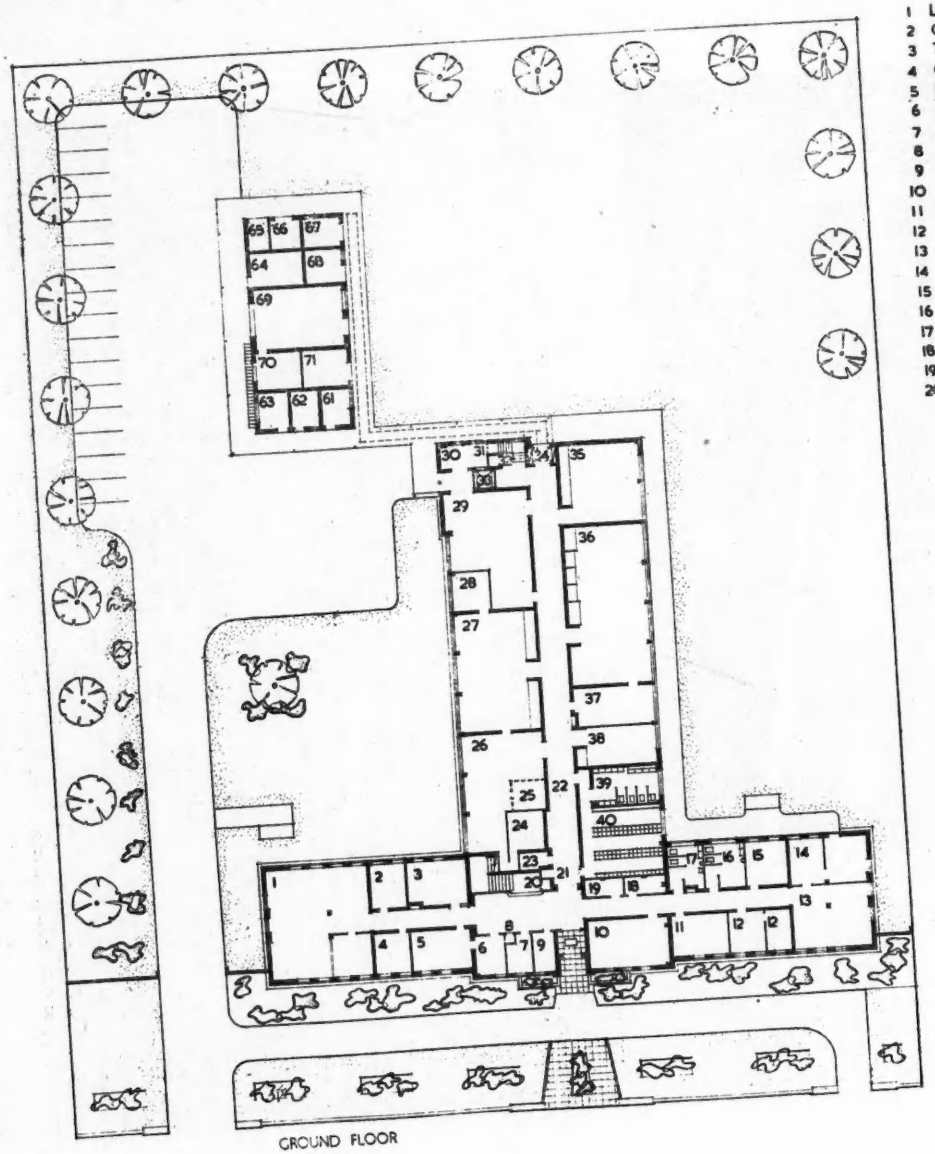
Ventilation. Natural ventilation is coupled with forced exhaust from the fume chambers—of which there are a considerable number. Heated air is blown in at the rear of the first-floor corridor and is vented into the various laboratories at floor level, under the fume cupboards, helping to compensate for air exhausted. Exhaust fans for these chambers are in penthouses on the roof, each fan exhausting from a bank of two or three chambers.

Heating. Low-pressure hot water is circulated through copper coil ceiling panels. Where suspended ceilings occur, in corridors, the panel warming is in the floor. Steam for the calorifier is conveyed from the main works.

Services Distribution. Service generators are positioned in the stores building, from where services are brought by underground duct to the rear of the laboratories. Rising then in vertical shafts, they pass to the horizontal duct over a suspended acoustic ceiling, above the ground-floor corridor. Within the ground-floor laboratories, the services are run behind furniture, or in the floor screed; first-floor distribution is accomplished in a foamed slag floor filling which also takes the floor drainage channels.

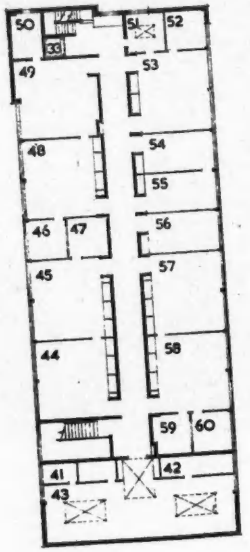
Services to furniture are distributed in three different ways; by running them on the wall behind benches, when working surface must be kept entirely free; by servicing strips at the back of wall benches; and by suspension beneath re-agent shelves in island benches and some wall benches. Including the various electrical voltages, there are over 20 different service lines in the building.

Furniture. Timber furniture is used throughout, Iroko and teak for the bench working surfaces, asbestos cement for combustion benches, white and red tiles for different fume chambers.

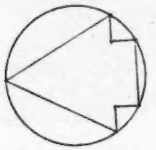


GROUND FLOOR

1 Library
2 Office
3 Typists' Office
4 Office
5 Manager - Research Dept.
6 Secretary
7 Office
8 Telephone
9 Office
10 Conference Room
11 Office - Assistant Manager
12 Offices
13 Physics Laboratory
14 Electron Microscope Room
15 Office
16 Female Lavatory
17 Male Lavatory
18 Store
19 Dark Room
20 Telephone
21 Cleaners' Cupd.
22 Corridor
23 Automatic Telephone Exchange
24 Dark Room
25 Future Conditionning Room
26 Pigment-Physics Laboratory
27 Paint Laboratory
28 Store
29 Main Store
30 Lift Motor Room
31 Cupboard
32 Cupboard
33 Lift
34 Secondary Entrance
35 Pigment-Chemistry Laboratory
36 General Metallurgical Laboratory
37 Writing Room
38 Metallography Laboratory
39 Male Lavatory
40 Male Cloaks
41 Electro analysis Laboratory
42 Micro analysis Laboratory
43 Analytical Laboratory
44 Physical Chemistry Laboratory
45 Catalyst Laboratory
46 Writing Room
47 Writing Room
48 Inorganic Laboratory
49 Chemical Engineering Laboratory
50 Office
51 Office
52 Writing Room
53 Organic Laboratory
54 Fluorine Laboratory
55 Autoclave Laboratory
56 Instrument Development Laboratory
57 Process Metallurgy Laboratory
58 Process Metallurgy Laboratory
59 Microscope Room
60 Writing Room
61 Inflammable Liquids
62 Hazardous Chemicals
63 Acid Store
64 Electrical Low Tension
65 Electrical-High Tension
66 Transformer Room
67 Compressor Room
68 Calorifier Room
69 Workshop
70 Glass-blowing Room
71 Equipment Store



FIRST FLOOR



The first-floor corridor, which has top light by means of dome lights and is dropped to a lower level to allow for clerestory lighting and cross ventilation to the chemistry laboratories.

Drainage. The very corrosive materials employed in the laboratories necessitated elaborate drainage precautions. Three separate systems of outside drainage carry away the rainwater, soil waste and laboratory effluent. This last-mentioned is carried in chemical stoneware pipes jointed in acid-resisting cement, and the neutralising chambers are entirely of acid-resisting construction. Half-round floor drainage channels are in chemical ware and jointed as for the outside drains; teak cover boards close the channels. Vertical drain pipes inside the building are glass-lined cast iron.

The general contractors were Messrs. John Morgan (Builders), Ltd., of Cardiff, sub-contractors and suppliers being :—

Reinforcement, British Reinforced Concrete Co.; metal windows, Henry Hope and Sons, Ltd.; dome lights, Pilkington Bros., Ltd.; sun blinds, Joseph Bryant, Ltd.; tiling and tiled partitions,

The ground-floor corridor. The floor is laid in thermoplastic tiles and the suspended ceiling has a centre panel of acoustical material.

Carter and Co.; Portland stone, Bath and Portland Stone Firms; laboratory furniture, North of England School Furnishing Co.; door furniture, staircase handrails, entrance gates and clothes lockers, James Gibbons and Co., Ltd.; door lettering, Dales (Lettering) Ltd.; acoustic ceiling lining, Tentest Fibre Board Co., Ltd.; sanitary goods, Associated Clay Industries; acoustic wall panelling, Newalls Insulation Co., Ltd.; acid-resistant drainage and roofing, General Asphalte Co., Ltd.

Acid-resistant stoneware, Sharp Jones and Co.; cinematograph blinds, J. Avery and Co., Ltd; clock installation, Synchromes, Ltd.; goods lift, Pickerings, Ltd.; plastic floor tiles, Semtex tiles, laid by Horsley Smith; fire-fighting equipment, Pyrene Co., Ltd.; paints, Imperial Chemical Industries, Ltd., doors, Merchant Trading Co., Ltd.; terrazzo flooring, Marble Mosaic Co., Ltd.; Glascrete windows, J. A. King and Co.; facing bricks, London Brick Co., Ltd.; Korkoid flooring, Korkoid Decorative Floors, Ltd.; damp-proof courses, Leadcore (G. M. Callender and Co.); electrical installation, Christy Bros.; heating and plumbing, G. N. Haden and Sons, Ltd.; blackboard, Bristow Wadley, Ltd.; structural steelwork, Connies and Meaden, Ltd.; and cast-iron drainage, Burn Bros.

General view of the physics laboratory, which is on the first floor over the main entrance. The floor is laid in thermoplastic tiles and the benches have white tiled tops.

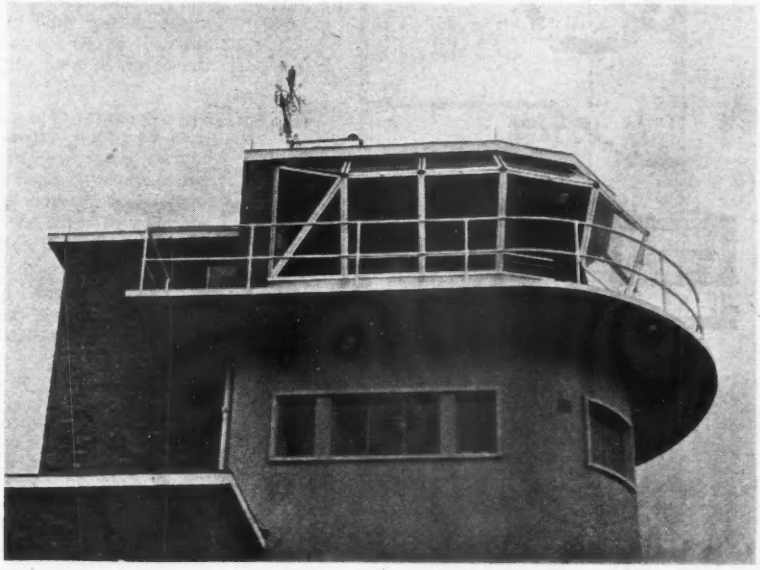
The main entrance hall. The floor is laid in light brown Korkoid squares with alternating light and dark marginal strips. The stairs are in terrazzo with non-slip treads and the balustrades in wrought-iron picked out in light and dark blues.

RESEARCH LABORATORIES, AVONMOUTH, FOR IMPERIAL SMELTING CORPORATION

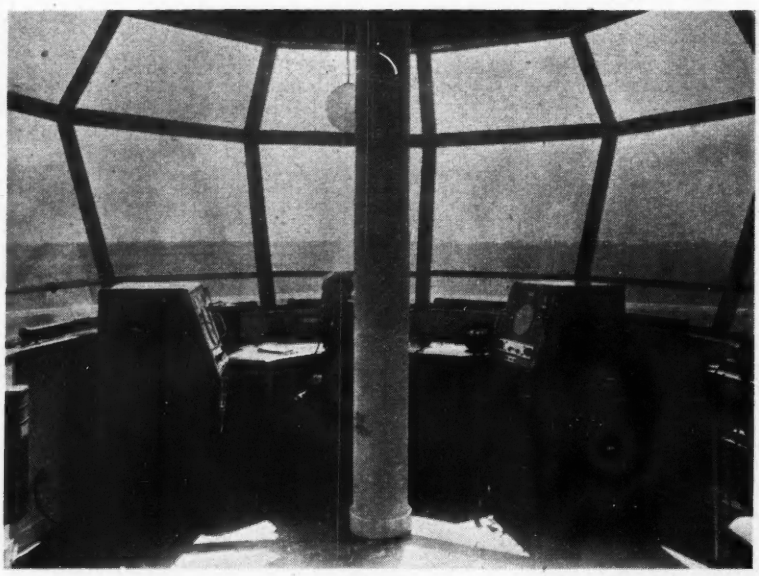
FLYING CONTROL TOWER, LUTON AIRPORT

F. OLIVER, AMICE, AMIStruct.E, BOROUGH ENGINEER, LUTON

W. VICTOR SMITH, ARIBA, CHIEF ARCHITECTURAL ASSISTANT



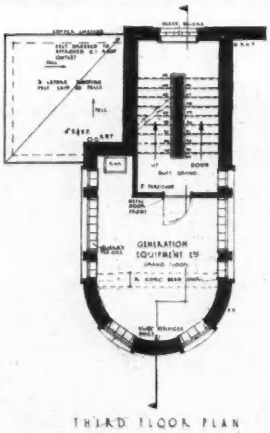
Upper part of control tower.



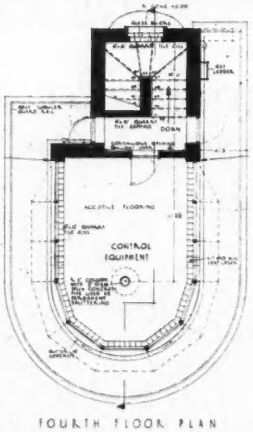
Control room.

THE need for the provision of a new control tower at Luton Airport became very apparent soon after the war, due chiefly, perhaps, to a marked increase in the volume of air traffic and the use of the airport by heavier and faster types of aircraft.

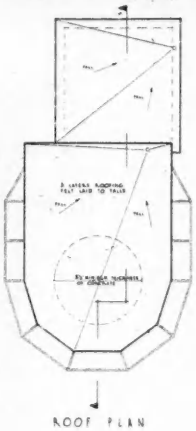
The existing control tower, which was erected some years ago as a temporary structure, gradually became inadequate to deal with the changed conditions prevailing at the airport, and it was found that this building was insufficiently high to cover the whole of



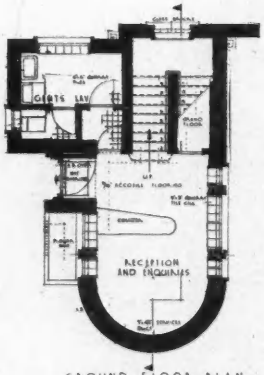
THIRD FLOOR PLAN



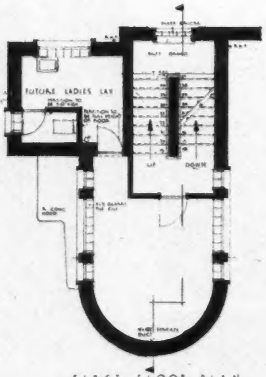
FOURTH FLOOR PLAN



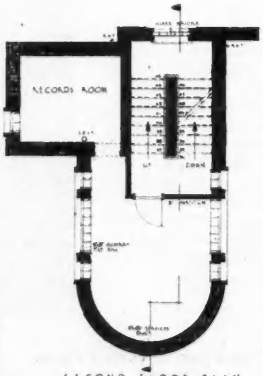
ROOF PLAN



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

the airfield with the result that, on a number of occasions, difficulty was experienced in giving safe landing instructions to approaching aircraft.

The decision to construct a more permanent control tower was made in the latter part of 1950, and it was then considered that the new building should be designed to cater for a growing expansion of the prevailing air traffic conditions. A site for the new building was selected to the west of the airfield, some 200 yds. away from the existing control tower and in a position where a commanding view of the airfield was obtained, and where the controller would be afforded a full view of the approaches to all landing runs.

Notwithstanding the obvious advantages of the new site, it was still necessary, however, to elevate the main control room to about 40 ft. above ground level, in order that circling aircraft could be kept under reasonable observation.

The general accommodation requirements were otherwise very modest. Rooms for the provision of generating and control equipment, each within 120–150 ft. sup. were necessary, together with a small reception office and an additional area to be reserved for records and meteorology. Some provision for the usual lavatory accommodation was also considered desirable. These requirements provided a building of comparatively small area, but of appreciable height.

STABILITY CONSIDERATIONS

With the exposed position of the site and the exceptional wind velocities which are frequently obtained at the airfield, the question of stability and anchorage of the structure was, therefore, one which had to be considered in the early stages of design.

In addition, the installation of valuable and delicate equipment which would be quickly and adversely affected by dampness, made it essential that the building should be wholly weathertight and capable of resisting even the slightest penetration of driving rain under extreme gale conditions.

Economy in cost, coupled with the prospect o limited steel supplies, were other factors which largely influenced the system of construction to be used.

After due consideration, the alternatives of a steel framed or reinforced concrete structure were abandoned in favour of the use of load-bearing brick walls with *in-situ* reinforced concrete floors and roofs. The external brickwork to the ground floor was therefore constructed 18 in. in thickness and 14 in. for the remainder of the building up to the level of the fourth floor.

Additional stability against wind pressures was provided in the form of four *in-situ* reinforced concrete columns cast in flush with the inner face of the brickwork and carried down the full height of the building from the level of the control room floor. These were anchored down to the main foundations to act as tension members on both main flanks of the structure.

To eliminate penetration of driving rain, the main walls of the control building were finished externally with two coats of stone paint and all external walls were treated on the inside with R.I.W., followed by the normal plastered finish. This treatment has so far proved entirely satisfactory. The external walls to the staircase and sanitary offices were constructed 14 in. in thickness and were finished externally with L.B.C. Stewartby facings and with the provision of R.I.W. on the inside face.

The design of the main observation window to the control room was based on obtaining a maximum angle of vision, which resulted in a cranked window section set to angles of approximately 130 degrees and 70 degrees. The construction of this window involved some problems such as ensuring that the glazing units would be thoroughly weathertight. The proposals submitted by the manufacturers in this connection were, however, accepted and subsequent tests carried out with fire hoses gave no signs of water penetration after the glazing had been subjected to a prolonged and high-pressure hosing. Unrestricted glazing was achieved by means of cantilever roof supported on a central reinforced concrete column. Thermal insulation was provided by 1 in. of " Pyrok " sprayed to the underside of the control room roof and finished in a dark grey colour to off-set potential sun glare. Fixings for the provision of sun-curtains were also included at the head of the observation window, but curtains have not been provided since they have not so far been found necessary.

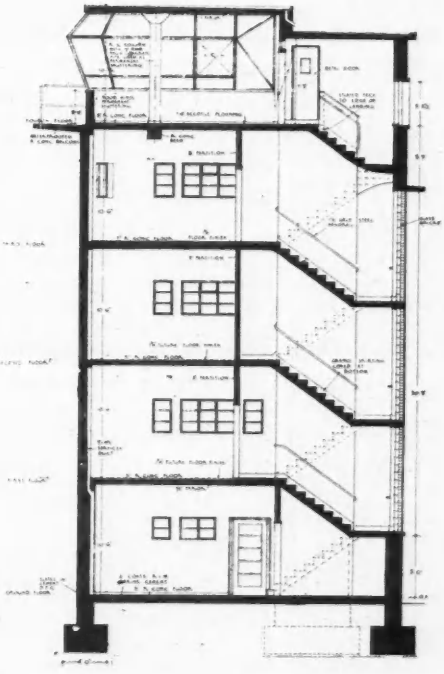
The floors of the control room and equipment rooms, where dust elimination was essential, were finished with tiles, but elsewhere, due to economy reasons, with ordinary grey granolithic.

The total height of the building, as now erected, is approximately 52 ft. 6 in. above ground level. Wireless aerials and equipment for wind-speed and direction indicators have been installed on the roof. Both these services are erected on a tubular steel mast through which all necessary cables and aerial leads are taken down direct to the control and equipment rooms.

Transmitting and receiving equipment has been incorporated in the control officer's desk, together with the wind-speed and direction indicator dials, including telephone and crash alarm system.

HOUSING THE EQUIPMENT

The equipment room is provided on the third floor, immediately below the control room. Here the main



Longitudinal section.

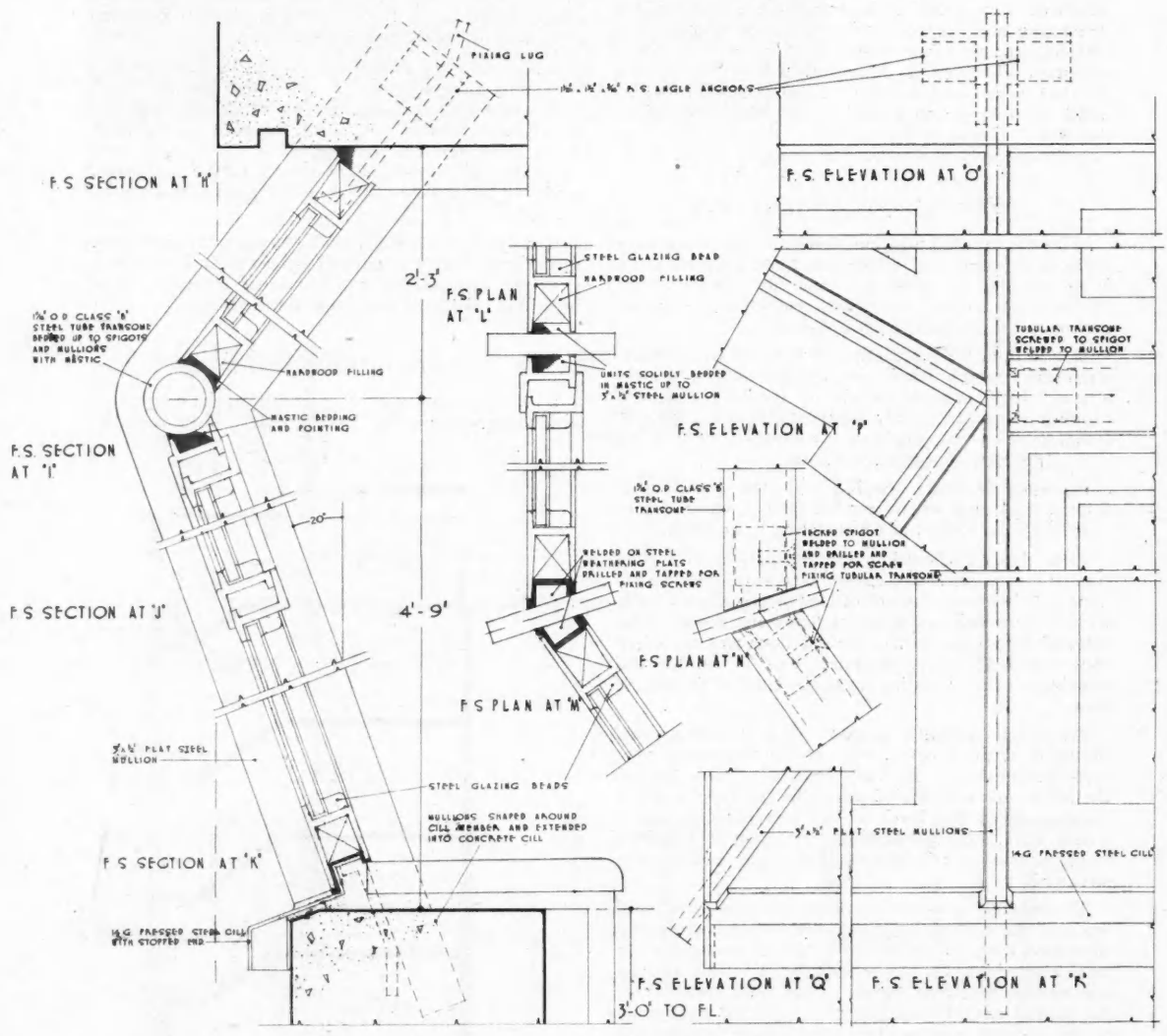
radio transmission equipment is housed, together with a standby battery plant which comes into operation automatically in the event of a breakdown in the normal electricity supply. The second floor is to be used as a records office and teleprinter room, while accommodation on the first floor is intended to be utilised in the future as a meteorological office. Electric heating has been provided throughout.

The final cost of the building, exclusive of specialised equipment, is estimated to be within the region of £6,000–£6,500, representing an approximate cube valuation of 6s. 3d. This figure, which at first glance may appear somewhat high, does, however, reflect certain extenuating factors such as difficulties arising from the remoteness and exposed condition of the site and also the periodic delays which were inevitable from the time floors and roofs were concreted until shuttering could be struck and work resumed.

The building and all other works were designed in the Borough Engineer's Department, Luton Corporation, under the direction of the Borough Engineer, Mr. F. Oliver, A.M.I.C.E., A.M.I.S.E., and the Deputy Borough Engineer, Mr. K. Seymour, A.M.I.C.E. The architects in the department who were engaged upon the work were Mr. W. Victor Smith, A.R.I.B.A. (Chief Architectural Assistant) and Mr. J. W. Murphy, A.R.I.B.A. (Principal Architectural Assistant).

The general contractors were Messrs. David Chaston, Ltd., Hoddesdon, Herts, and the clerk of works was Mr. A. R. Loxley. The following sub-contractors were also responsible for various specialist works and materials :—

Crittall Manufacturing Co., Ltd., metal doors and windows ; Scientific Radio Service Co., electrical installation and emergency lighting ; J. W. Gray and Son, lightning protection ; Gibbs and Dandy, Ltd., Luton, ironmongery ; F. Chandler, Ltd., Luton, control room desk.



Sketch details of observation window to control room.

FLYING CONTROL TOWER, LUTON AIRPORT

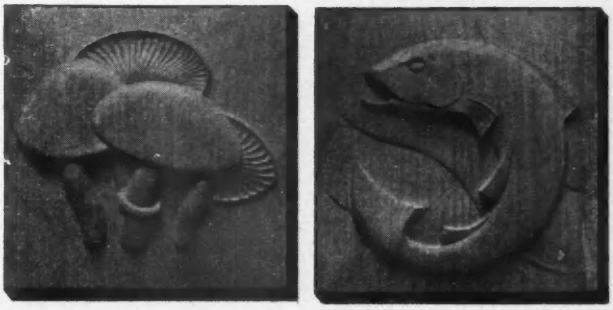
Carved Panels on the UNITED NATIONS BUILDING, NEW YORK

JOHN SKEAPING, ARA, SCULPTOR

C. TERRY PLEDGE, MBE, ARIBA, ARCHITECT (MOW)

HOWARD ROBERTSON, MC, ARA, PRIBA, CONSULTANT

HER Majesty's Government is presenting to the United Nations the panelling and furnishings of one of the committee rooms in the headquarters building. The English oak panelling which is natural colour and waxed polished is designed with horizontal bolection moulded panels alternating with square fielded panels, the latter bearing carved motifs of British fauna and flora. There are 84 of these panels, all designed and worked by John Skeaping, A.R.A. The panelling was made by Messrs. Green and Vardy. The furnishings include tables and chairs in English oak and a green close-fitted super-Saxony Wilton carpet.

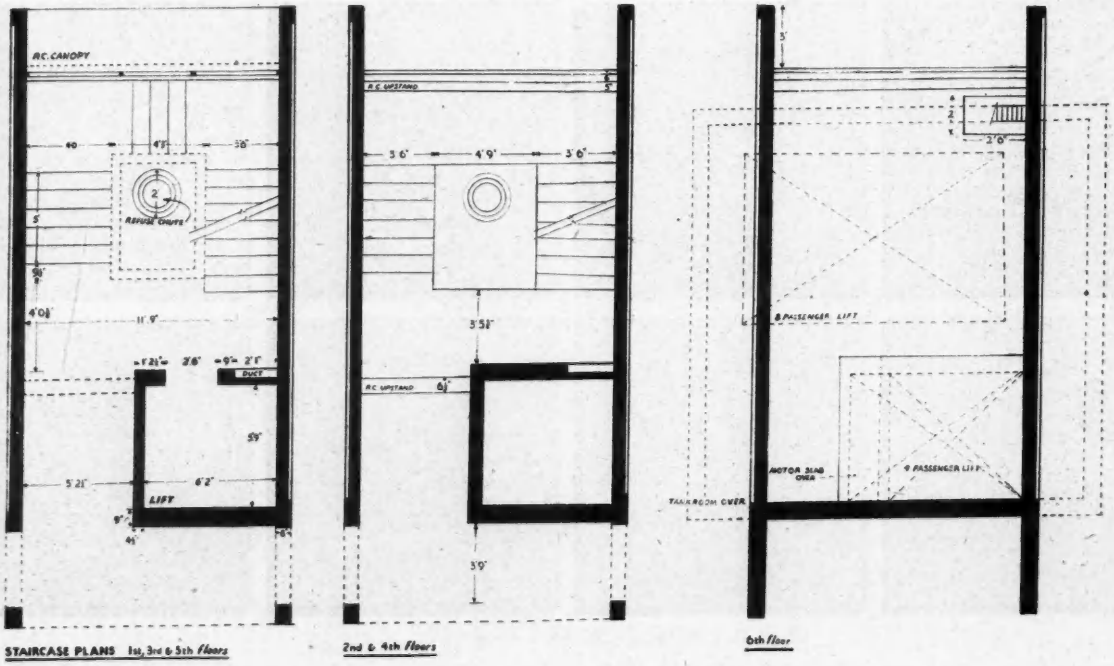


CHURCHILL GARDENS

Flats at Pimlico for the Westminster City Council

POWELL AND MOYA, AA.RIBA, ARCHITECTS

Shown on this page are two details of this new section of the scheme more fully illustrated in our issue for September 26. On the right is a detail of window and balcony on the west elevation of Block 10; below, a detail of the staircase plans, showing position of lifts and refuse chute.



STAIRCASE PLANS 1st, 3rd & 5th Floors

2nd & 4th Floors

6th Floor

Atom Bombs and the Architect

PROBLEMS OF DEFENCE

An earlier article on this subject by the same author appeared in our issue of June 13 last

By JOSEPH B. SINGER, BSc(Arch), ARIBA

THROUGHOUT the ages, architecture has been a reflection of the social trends of the times, and its creative expression was conditioned by the course of history. Architecture served peace by providing a necessary background for human activities, and contributed to its preservation through many buildings of a cultural nature. In times of war, however, buildings were often used for the defence and protection of their inhabitants ; some of these buildings were erected specifically for that purpose, with thick masonry walls and small window apertures.

The destructive power of modern weapons has to some extent wiped out the distinction, prevalent in the past, between buildings for peaceful purposes and other buildings, loosely termed "military objectives." The force of atomic blast is aimed at destroying industrial centres in the first instance, but as past experience has shown, targets not necessarily belonging to the category of military installations are also subject to destruction.

The advent of the "Atomic Age," which should have brought to mankind the benefits of the newly discovered form of energy and revolutionised many aspects of building, has instead faced architects with problems of defence against immensely destructive forces. While these more powerful weapons were developed, building techniques progressed considerably and new construction systems were evolved. Parallel to it, the requirements of buildings multiplied, and thus the functions of the architect became more complex and exacting. A building operation required the assistance and expert knowledge of various organisations and bodies, acting in an advisory capacity. The acceptance of the widening responsibilities of the architect, as an organiser and co-ordinator, and the constant necessity of adapting himself to changing conditions are prerequisite to the retention of his place in society. The fact that the public looks for guidance from the architectural profession was demonstrated clearly during the recent visit of the past-president of the R.I.B.A. to the U.S.A. Many questions were put forward about the way in which architects in this country were planning to cope with the defence against atom bombs.

In these days, when Civil Defence grows again in importance, it is felt that a Government-sponsored committee, comprised of scientists and representatives of the architectural profession, should be set up to advise on defence measures for buildings. Co-operation with similar bodies working in America would be advisable and their findings based on long research and experience made applicable to local conditions. The provision of suitable shelters and the erection of new buildings complying with the recommendations of this committee would thus become a part of Civil Defence.

This new committee would have to inquire into four problems of defence : (1) the characteristics of explosions and the nature of damage from atom bombs ; (2) the degree of vulnerability of different constructional systems ; (3) the short-term policy—rapid and most economical improvement of existing essential buildings, conversion of suitable premises into shelters, and design and production of prefabricated personal shelters ; (4) the long-term policy—design of new buildings taking into account the effects of the atom bomb, and their design in accordance with the new recommendations.

Details are already available about the nature of atomic explosions, and only the elementary facts are here summarised. The explosion of an atom bomb produces a ball of fire about 900 ft. in dia. and having a temperature of 7,000 deg. C. This ball of fire expands and forms a blast wave, which continues to move in an outward direction. The blast wave is followed by a wind with the initial velocity of 800 m.p.h. The wind force diminishes gradually, as it moves away from the source of explosion, dropping to 200 m.p.h. at a distance of one mile and to 100 m.p.h. at 1½ miles. Subsequent to this great air pressure, comes a partial vacuum ; apart from damage caused by fire sucked into the low pressure area, it has another destructive effect, different from that of the force of blast. Observations at Hiroshima and Nagasaki were recorded and tabulated to show the degree of destruction of different types of buildings in relation to their distance from the point of explosion. Generally, the area of complete destruction was found to be within a radius of half a mile from the "ground zero," i.e., the point beneath the explosion. Severe damage was encountered up to one mile, minor structural damages up to two miles, and some effects experienced even up to the range of eight miles.

It can be seen from the table below that earthquake-resistant buildings, designed with their height limited to 100 ft., were the strongest. Reinforced concrete structures were in the next group, followed by steel framed, partially framed and then load-bearing wall buildings. In general, it was found that the vertical component of the blast force caused more damage at a distance close to the explosion ; under the impact of this force, the roofs mainly failed, while the lower parts of the building suffered less than their equivalents further away from the explosion point.

Apart from findings at Hiroshima and Nagasaki, results of further tests carried out by American authorities were published ("The Effects of Atomic Weapons," by the Atomic Energy Commission and "Survival Under Atomic Attack," a U.S. Government publication), and these should facilitate a more detailed analysis of the types of buildings with regard to their blast resistance. In the light of the foregoing, new recommendations could be put forward, and thus a basis established for short-and long-term policies for defence of buildings.

In the first stage of the short-term policy, industrial, commercial and residential areas would have to be surveyed to find out the number, size and type of shelter required. Having determined the allocation of shelters, the next step would be to proceed with the working out of recommendations for conversion of existing premises, elimination of dangerous parts of structures or installations, and the selection of sites for emergency personal shelters. It is clear that an emphasis should be laid on economy, speed and potentialities for alternative peace-time uses to offset the initial financial outlay.

The recommendations of the Atomic Energy Commission can be summarised as follows :—

(*a*) Buildings should be designed to withstand the wind force horizontal component of 90 lb. per sq. ft. and the vertical component of 70 lb. per sq. ft. (*b*) Earthquake - resistant construction should have either (1) a heavily reinforced concrete frame, or (2) a steel frame with an adequate concrete casing. It can be mentioned in passing that the construction cost of earthquake resistant buildings is 10 to 15 per cent. higher than that of normal structures. This figure can be taken as a basis for estimating the extra

Distance from the point of explosion	*Wind velocity (m.p.h.)*	*Duration seconds*	*Over-pressure lbs./sq. in.*	*Effects.*
1,000 ft.	800	0.37	36	Lateral shifting of heavy steel plate girder bridge.
1,500 ft.	700	0.41	30	Distortion of heavy steel frame buildings and loss of roofs and panels.
2,000 ft.	550	0.45	24	Collapse of r.c. buildings with 10 in. walls and 6 in. floors. Resistance limit of r.c. buildings designed to withstand earthquakes.
2,500 ft.	470	0.53	20	Destruction of all buildings other than those of earthquake resistant construction.
3,500 ft.	320	0.69	13	Destruction of 18 in. brick wall.
4,500 ft.	230	0.84	8.5	Collapse of light concrete buildings and destruction of steel framed buildings due to distortion of frames.
5,000 ft.	200	0.90	7.4	Severe cracking of 12 in. brick wall.
6,000 ft.	160	0.98	5.2	Severe structural damage to steel framed buildings and cracking of 9 in. brick wall.
8,000 ft.	100	1.12	2.9	Severe damage to houses and similar types of buildings.
9,000 ft.	80	1.15	2.4	Heavy damage to plaster.
10,000 ft.	70	1.20	2.0	Blast damage to majority of houses and fire damage due to flash ignition of dry combustible materials.
12,000 ft.	50	1.25	1.5	Light damage to window frames, doors, plaster, etc.
8 miles				Limit of light damage.

cost in buildings with a higher degree of blast resistance. (*c*) Design of continuous structures with bracings and suitable connections between members is recommended. (*d*) Roofs to be designed to withstand the vertical force of blast. (*e*) At least one staircase to be enclosed, together with water tanks for fire-fighting equipment. (*f*) Buildings should have only the minimum essential window area and this to be glazed with wired glass; alternatively, acrylic or resin-bonded glass fibre sheets can be used. (*g*) Shelters to be built centrally within buildings and door openings protected by baffle walls. (*h*) A space should be left around the buildings to prevent the spread of fire from adjoining buildings. (*i*) Exposed gas pipes, electrical conduits and light fittings to be removed and other fire hazards eliminated; exposed parts of the structure, liable to become dangerous missiles, to be encased.

In the case of industrial buildings, it should be noted that "saw-tooth" types of roofs are regarded as most vulnerable to blast damage. Different parts of the building should be strengthened to enable the structure to resist blast forces as one unit. An alternative method suggested is to leave a weak link between the frame and curtain walls; the force of blast would then easily blow away the curtain walls, and the structure would have a better chance to withstand the shock, owing to an immediate equalisation of outside and inside pressures. Apart from shelters for the protection of personnel, other shelters for more valuable equipment and machinery should be provided. Prefabricated shelters from reinforced concrete panels in the form of ribbed shell segments could easily be assembled and stacked away.

There are two types of shelters that are being advocated, namely those to accommodate large numbers of people, and others to cater for small groups. Subterranean communal shelters are visualised, which in normal conditions could serve as underground stations and parking places in highly congested commercial areas. These dual purpose shelters would have to be designed with a roof depth capable of withstanding the penetrating force of high explosive bombs and should afford protection from atomic blast. The problem of air conditioning is equally important, since a fresh air supply installation can become the most vulnerable part of the shelter. The supply of oxygen could be obtained by drawing air from the outside, or by storing large quantities of oxygen, the latter being preferable owing to the possibility of outside air contamination. It is also quite obvious that in times of emergency, the subterranean shelter could not be used for underground garages and parking areas because of fumes and of the explosive nature of petrol. Perhaps the main shortcoming of such shelters is the human factor, as it is not difficult to imagine the conditions that would follow an alarm at short notice; congestion and panic at shelter entrances would result in great casualties which may interfere with the working of rescue and fire-fighting teams after the explosion. It is therefore essential that careful consideration should be given to the general planning of the shelter and of access from adjoining streets and buildings. The planning of entrances and exits must be aimed at eliminating situations leading to cross-circulation and bottlenecks. Furthermore, there should be a protected and separate space for first aid, rescue and fire fighting services.

Small prefabricated shelters, suitably dispersed, are recommended to be used alongside the communal shelters. It is recognised that in the immediate area of a direct atom bomb hit, the force of explosion is greater than the resistance offered by other than specially built underground shelters. However, at a relatively short distance from the explosion it is feasible to build small prefabricated shelters capable of giving the required protection. Such shelters, similar to the ones used at Eniwitok Atoll tests, could be quickly assembled and built in times of emergency, and dismantled when no longer needed. They offer an economical solution and a possibility of other applications after dismantling. These shelters can be either semi-circular or parabolic. In the semi-circular type, smaller units can be assembled from segmental slabs and locked at their top joint; larger shelters may be based on the principle of a perfect hemisphere built up from twelve identical components. Parabolically shaped shelters, consisting of complete sectional units, could easily be extended longitudinally to accommodate the required number of people. In both cases, the concrete panels should be ribbed to impart greater strength and to facilitate the jointing. The edges of the panels could be rebated or tongue-and-grooved, and the slabs bolted together. The shelters would have to be partly or completely submerged in excavations, preferably covered with a layer of earth, and the entrances flanked with baffles.

A HOUSE AT MAIDSTONE

Minister Upholds Appeal

THE appeal by Mr. George Beattie, of London-road, Maidstone, against the refusal of the Maidstone Town Council to allow planning permission for a house designed for him by Mr. John Poltock, A.R.I.B.A., has been upheld by the Minister of Housing and Local Government.

The Minister, in a letter to the Town Clerk of Maidstone, says "At the inquiry it was stated on behalf of the Council that plans for three bungalows on plots adjoining the appeal site (on the Foley Park Estate, Sittingbourne-road) had been approved.

"The Council had refused permission for the house proposed by the appellant because they considered it was very unusual in design and would be too much of a contrast with these bungalows.

"The appellant is much interested in modern architecture and has employed an architect to design him a house which appeals to his own taste in architecture. The design is undoubtedly strikingly in contrast with the designs approved for bungalows which will be built on adjoining plots but the bungalows themselves are not designed to form a single architectural concept such as, for example, a terrace of houses, and there is no question of the proposed house breaking an otherwise carefully designed unity.

"In these circumstances the Minister does not consider it reasonable to withhold consent solely on grounds of unusual appearance and he has accordingly decided to allow the appeal."

At the Public Inquiry Mr. Beattie said he wanted something better than "suburban architecture," which he considered was at a very low level in Maidstone and other parts of England. The approximate cost of the house designed by Mr. Poltock was £3,000.

Mr. John Poltock is head of the department of architecture at the Medway College of Art.

(A model of the proposed house was illustrated in our issue of August 29.)

THE SOUTH BANK

Princes Meadows Estate

AT its meeting on October 7, the London County Council approved a recommendation by its Town Planning Committee to purchase for £1,450,000 the Princes Meadows estate, Lambeth and Southwark.

The Princes Meadows estate, with a quarter-mile frontage on to the River Thames, covers 35 acres of land between Waterloo Bridge and Broad Wall to the east. In purchasing the Princes Meadows estate from the Duchy of Cornwall, the L.C.C. is being recommended to reserve a site of approximately five acres immediately adjoining Waterloo Bridge for the erection by H.M. Government of a Science Centre—a new "Burlington House"—which it is proposed should become the home of the Learned Societies, the Patent Office and the Department of Scientific and Industrial Research.

The Treasury have given authority to the L.C.C. to borrow money for the purchase of Princes Meadows estate. Construction of the new Science Centre would involve the L.C.C.'s consideration of an extension of the river wall eastwards from Waterloo Bridge—a development which would enable the Council to reclaim more land from the river and to extend further the riverside open space towards which the reclamation of land by the construction of the river wall for the South Bank exhibition site has made so great a contribution.

In the County of London Development Plan, 1951, the South Bank area, which includes the whole of the Princes Meadows estate, is envisaged as a southward extension of the central area of London and the proposals include the provision of buildings for central and local government purposes and for cultural, office, commercial and industrial uses.

Properties in the estate at present include commercial buildings, government offices, wharves, two modern blocks of flats, a number of small business and residential buildings, two licensed premises.

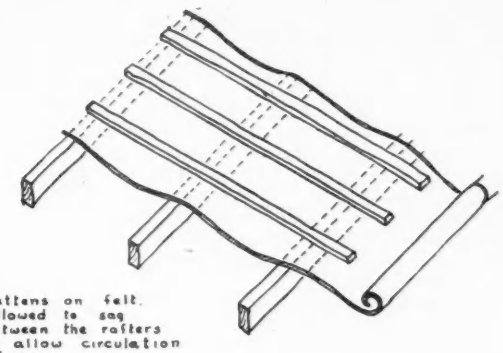
Some of the existing properties are held on long leases and redevelopment will necessarily be spread over many years. But purchase of the land will enable the Council to safeguard redevelopment proposals and to secure better comprehensive planning.

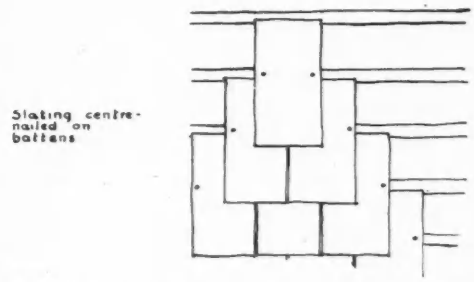
CHURCH ROOFING MATERIALS

3.—PITCHED ROOFS (*d*) SLATES

Part 1.—*Welsh, Cornish and Westmorland*

A further article in the series compiled by the Roofing Committee of the Central Council for the Care of Churches in conjunction with the Society for the Protection of Ancient Buildings.





SLATING Fixing details

FORMATION

THE mineral formation of slates is either by the compression of muds of volcanic ash, as in the case of Welsh slates, or from rocks with a pronounced line of cleavage.

HISTORY

Slated roofs have existed in Great Britain as far back as it is possible to record. Quarried slates have proved a most effective protection against weather in many districts and in many localities there is no evidence of any other roofing material having been used. This applies especially to areas near Westmorland and Cornish quarries, as well as to areas near the quarries of North and South Wales.

Because of transport difficulties the slate roof was originally confined to the proximity of the quarries but, with the advent first of the canals and then the railways, roofing slates became increasingly popular over most of the country. Although Sir Christopher Wren made extensive use of them, it was not until early Victorian times that they came into universal use.

To-day, in practically every town, stands evidence of the increased use of slate for roofing. The ease of splitting and relatively low weight ratio to covering area of the blue Welsh slate led to its predominant use at distances from the quarries.

AESTHETICS

Great differences exist between one slate roof and another. Broadly speaking, there are two main classes of slate roofing :

1. The slate of the North Welsh quarries which is smooth in texture and dark blue, purplish or greenish grey in colour and has a leafy cleavage ;

2. The slates of the Westmorland and Cornish quarries which are rough in texture and vary from sea-green to dark blue in the former instance and from greenish-grey to rusty-brown in the latter instance.

Slates from North Wales are habitually dressed to regular sizes, and an appearance of extreme mechanical neatness is inseparable from this type of roofing. Whilst giving a perfect weather-tight protection, this form of slated roof is monotonous and lifeless in appearance.

In contrast, Westmorland and Cornish slates produce effects which leave little to be desired from the appearance of both texture and colour. Because of their granular cleavage, they are thicker and stouter than the Welsh slates and vary materially in size. It is customary to commence laying the largest slates at the eaves so that the courses diminish up the slope of the roof. In conjunction with their spalled edges, this gives them their distinctive and pleasing appearance.

SUITABILITY

Welsh slating may be used on pitched roofs down to a pitch of as low as 22 deg. above the horizontal plane. It is a rule that a flat pitch will require larger slates than a steep pitch. Furthermore, the short thick slates of necessity require a much steeper pitch to produce the same lap as that of the long thin one.

The flatter the pitch the less quickly the water disperses, and so it tends to infiltrate behind the slates and may penetrate through the nail holes in the course below. Large quantities of water should never be discharged over narrow slates for this reason. The practical advantages of diminishing courses is thus apparent—the greater the rain water for disposal, the larger the slate required, so that, at the eaves, the slate is often more than double that at the ridge. There is less risk of the eaves slate being lifted by wind if it is large, especially in very exposed areas.

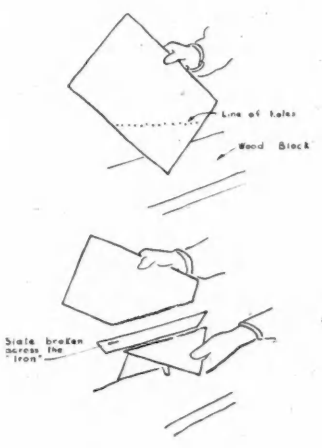
The pitch of the roof is determined by the type of slate used and the amount of exposure to which the building is subjected. Buildings on exposed sites, which suffer from the more severe weather, require a steeper pitch than a more temperate climate, such as southern Italy.

The stouter Westmorland and Cornish slates, with their rougher texture and thicker edges, have been found to exclude the weather better than the thinner Welsh slates which lie close together. The rough thick edges act as a brake to the wind which, because of their granular nature, allows air to circulate between the slates. This is of great assistance in drying out the underside of the slates.

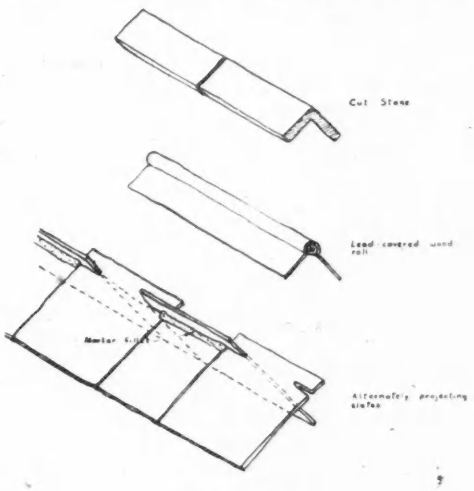
In addition to pitched roofs, slating may be used to cover domes. It should be remembered that the smaller the diameter of the dome, as the slating rises, the smaller will be the slates required. It is necessary to finish such work with some other form of material, as the curve becomes flatter at the top.

DURABILITY

Provided that slates are sound and well laid, there is no reason why they should not last for a considerable period. In the



Cutting a slate



Ridge details

quarry town of Delabole in Cornwall, there are examples of roof slating which have been in existence for 200 years and there are many cases about the country of stone slating untouched since medieval times.

Slate is a natural material cut straight from the earth and is impervious to almost any chemical action of the weather. Slate will readily resist soot and a dirty atmosphere and has, therefore, been very popular in cities. Nevertheless a slate may decay and rot at the head to an extent that, even if copper nails had been used, it would fall from its position. The decay, which consists of the complete breakdown of the slate composition into a soft powdery formation, is caused by damp penetration, condensation and the lack of air circulation. Air circulation beneath the slate and between the slate, boarding and felt should be provided. If possible, slates should span from where their heads are fixed to the batten to the toe resting on the slate below. This is effected by the use of sprockets or deep tilting pieces at the eaves.

ROOF CONSTRUCTION FOR SLATING AND FIXING METHODS

Slates may be fixed to battens, or battens on boards, or direct to boarding, as most common in the eighteenth century. Felt or a similar waterproof underlay is largely used. Boarding, felting, battening and counter-battening is the best method of laying slates.

Owing to their thinness, slates conduct heat and cold freely and cause condensed moisture to drip from beneath when warm air from inside the building is in contact with their cold surfaces. Care must be taken to avoid the chance of water lodging on the top of a batten. Counterbattens avoid this, but, when they are not used, boarding should be omitted and the felt allowed to sag slightly between the rafters.

If a vertical section is taken through a slated roof, at least two thicknesses of slate should be cut, while at the head and tail of each course three thicknesses will be intersected. The cover of one course by the tail of the course next but one above is called the lap. The amount of slate exposed to view is called the gauge. In addition, the bond of the slates must be studied so that no vertical joint comes immediately over the one beneath.

DETAILS OF DESIGN

1. *Ridges.* These may be formed with solid stone cut into V-sections; with lead covering a woodroll (common in the eighteenth century); or with half-round tiles, either red or Staffordshire blue. Ornamental terra-cotta ridges were used in the Victorian era; this finish is not recommended. All over the south of France ridges are formed by slates hanging alternately on either side of the slope and projecting above the ridge, one slate being notched into the other. This practice is rare in England, but examples have been found in the Lake District.

2. *Gable Ends.* These can be formed as verges, that is, the slates overhanging the wall face, when an undercloak of slate should invariably be used. Alternatively, the wall can be carried up as a parapet with a suitable coping. The finish at this abutment may be covered by stepped protecting slates, a mortar fillet, or a lead flashing with soakers which, though aesthetically rather hard, is the most permanently waterproof. In brickwork the lead flashing should be stepped and in stonework set in a chase or under coping stones.

3. *Hips.* Hips can be treated similarly to ridges, but if tiles or stone are used, some sort of suitable fixing must be provided at the bottom, such as a metal hip angle iron, to prevent them slipping down. Hips may also be mitred with lead soakers.

4. *Valleys.* These may be formed with a wide open or a secret lead valley, the secret valley being of modern origin and liable to be blocked and not easily cleaned. They may also be swept in the same manner as tiles, involving special cutting of the slates and substructure, or the slates may be mitred with lead soakers.

5. *Eaves.* Slates may discharge rain water into a lead gutter behind a parapet wall which should be of sufficient width to give access for walking. They may also discharge into an open gutter or with wide eaves direct to the soil beneath.

6. *Verges.* In order to protect the walls from dripping water, the slates are laid to project beyond the wall face at verges and should give a minimum overhang of 2 in. A slate half again as wide as the normal slates used on the roof is used in alternate courses. A normal slate is used as an "undercloak," and it is laid to tilt slightly upwards and is pointed with mortar.

7. *Generally.* Copper may be used for soakers and flashings in place of lead.

MAINTENANCE AND REPAIRS

Slate roofs, properly fixed, should require little maintenance. The most common fault is the tendency of slates to fall down the slope of the roof owing to (a) rusting of the nails or (b) the decay of the head of the slate. In both cases the best remedy is to strip and relay, replacing defective slates and iron nails with copper.

Where this is not possible and only a few slates are affected, the following method may be used for fixing individual slates:

(a) copper wire round batten, where this is practicable, (b) a copper wire clip turned up under bottom edge (this should be of stout material, lead clips are inferior for this purpose) or (c) the slate can be drilled at approximately the centre of the margin, this hole to correspond with the batten below. A fixing not to be recommended is effected by screwing the slate to the batten with a brass screw, with a washer bedded in mastic.

Any tendency of the slates to slip should immediately be checked, the cause found and a remedy provided. As ridges are frequently bedded in mortar, deterioration often sets in and they may need rebedding. It should be stressed that a soft mortar, incorporating hair, should invariably be used to allow for the movements of the timbers beneath.

INSULATION

The insulation value of slates is lower than that of tiles or shingles. In addition to boarding and felting the roof it is often desirable to provide additional insulation. Insulation board may be fixed above the rafters in an open roof, and this is quite pleasing in appearance. Where the roof is boarded below the rafter, glass silk quilt or aluminium foil may be laid between the rafters.

If a plaster ceiling is provided, this in itself gives additional insulation, but it may be improved by laying glass silk or aluminium foil between the ceiling joists.

VENTILATION

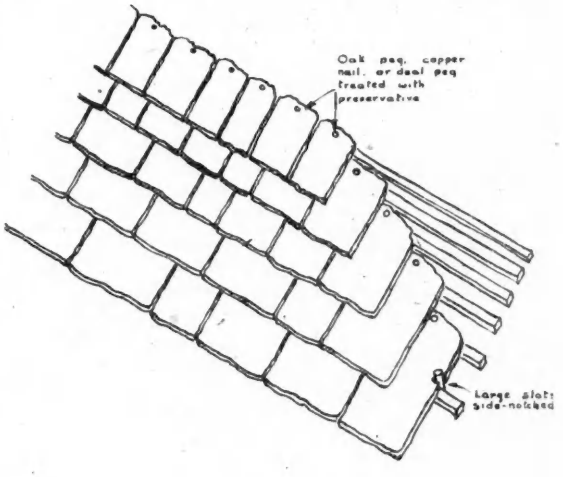
Ventilation should be provided to slate roofs to allow a free circulation of air round the slates. For this reason, pointing old slating in cement is a bad practice which encourages decay and capillary attraction. Ventilation should also be provided to the roof space.

Stone Slating

Part 2.—Kent, Sussex, Surrey the Cotswolds and Dorset

HISTORY

THERE is evidence of stone slates being used by the Romans in Britain when octagonal and oval stone slates from the Forest of Dean and Purbeck were quarried, the slates being fixed with an iron nail in the centre of the head. Where there was an outcrop of easily quarried and suitable stone for roofing, stone slates



Stone Slates laid in diminishing courses

in medieval times seem to have superseded shingles to a great extent as a more durable roof covering. When transport was simplified by the canals system, it was found more economical to import the Welsh and Westmorland slates that weighed less and, being more regular, were easier to fix. Hence, since the end of the eighteenth century, stone slates have been stripped off old buildings as the slates, or more often the fixing, fell into decay and Welsh and Westmorland slates were fixed instead. The stone slate quarries have therefore gradually fallen into disuse.

AESTHETICS

There is no doubt that a stone slate roof is one of the most attractive and interesting finishes that may be obtained, and these differ according to the part of the country from which they are quarried.

The stone slates quarried in the Halifax district were used in Lancashire and Yorkshire on small stone-built houses. These durable stones are grey in colour, close grained and are about ¾ in. thick. In some parts of Scotland, stone slates known as "Browns" are used. In the south, stone slates have been quarried in Kent, Surrey and Sussex, the Cotswolds and Dorset. Horsham slates, which are very thick and heavy, tone down to an attractive greenish brown, and, being irregular in size, are laid in diminishing courses. Purbeck stone slates are rather similar, though more greyish in colour, with a very rough texture, and are the most durable of all stone slates.

The Cotswold stone slate roofs are the best known of all stone roofs and are used over a very wide area and extensively on the Oxford Colleges. They are small in size and, when first quarried, have a light creamy brown surface, but they quickly tone down to a greenish brown.

Northampton stone slates are rather similar but of late have been quarried thinner and more regular, giving a mechanical and far less attractive finish.

Care should always be taken that stone slates should be used in or adjacent to the areas from which they are quarried.

SUITABILITY

Due to the great weight of stone slates, this form of roofing is only suitable in repairs where, in general, stone slate roofing has been used before. New roofs should be specially constructed to carry the weight. Stone slating depends on the highly skilled trades of the slate quarrier and the stone slater, both of which crafts are rapidly dying out. The Huntsman's Quarry near Cheltenham is one of the only remaining quarries in the Cotswolds still being worked, and that by only an elderly quarrier. There are a few more men who are capable of refixing a stone slate, but, again, it is only the older men for there are very few apprentices in the trade.

A steep pitch of 45 deg. to 55 deg. is desirable, but old stone slate roofs in Lancashire and Sussex are sometimes found with a pitch as low as 24 deg. where the stone slates are very large. In the Cotswolds, the pitch should not be less than 55 deg., as quick drainage is very important, due to the slates being slightly absorbent and the surface rough. This enables the main roof timbers to be slightly reduced, but again the battens have to be stouter and very well fixed to withstand the sheer strain of the pegged slates. As the slates are apt to break when stacked on a lorry the transport from quarry to job over any great distance is extremely expensive.

DURABILITY

A good quarried slate should last for 100 years if obtained from a good bed of stone and, what is also very important, fixed on the roof in the correct manner. All stones should have some opportunity to breathe by the circulation of air. It is unsatisfactory to lay the stones on a solid bed; where this is unavoidable, it is as well to leave the vertical joints open for the water to flow away. It is sometimes desirable to level up the top surface with lime and hair mortar before fixing a stone, provided adequate ventilation is maintained.

Stones should not be fixed direct to close boarding but should be battened and, if possible, counter-battened. This will give an air space for breathing.

Most of the roofs in Oxford which have been stripped of old stone during the last 30 years have not produced more than 50 per cent. of reusable stone, all of which is due to solid bedding to boards.

ROOF CONSTRUCTION

As has already been said, this type of roof covering needs far heavier timbers than any other, and a steep pitch with more direct loading on the walls is very essential. A good wall plate is required with some form of cross tie.

Stone slating bedded on boarding is undesirable. The best method is a stout rent oak batten fixed with copper nails at a varying gauge, according to the size of the slates.

FIXING

This has been partly dealt with under the last heading because the stone can only be sound and durable if fixed and used in the correct manner.

After a careful and knowledgeable selection of the stone, the stones should be turned over at the site of the building and sorted out for length, varying by 2 in., such as 8 in., 10 in., 12 in., etc. If oak pegs are used, they should be driven into the hole in the head of the stone ready for the fixer, before being taken up on to the roof.

The gauging of the battens should be graduated up the roof so that each stone has a lap of 3 in. Care should be exercised by the fixer to see that a vertical bond is maintained to give an even distribution of water on the slates beneath.

Stone slates usually have one hole at the top, through which is fixed a copper nail or hardwood peg or softwood, if treated with a preservative. This should be of a suitable length to hang over the batten. If the stones are large, they should be side-notched and be fixed and the batten with copper nails.

When the top of the stone slates are very irregular and broken, smaller thin slates, known as "gallets," are fixed between, acting as a soaker.

DETAILS OF DESIGN

All stone slates are laid in diminishing courses, starting with the longest stone for the eaves and reducing in length up the roof to the ridge.

Ridges: Ridges are formed with sawn stone, baked clay or precast concrete.

Eaves, Verges, Hips and Valleys: These are finished in a similar manner to Westmorland slating.

INSULATION

The stone slate roof, due to its thickness, has very good insulation properties if the draught factor, caused by the irregularities of the stones, can be avoided.

In the past, this was overcome in poorer types of stone roofing by close boarding and by bedding the stones in mortar but, as has already been said, this leads to deterioration of the wood and stones.

Where exposed rafters are a feature as in churches, lathing is sometimes nailed vertically between the rafters to the battens and then plastered. This is not satisfactory as, when any repairs are carried out to the stone slating, the ceiling is disturbed. Another method is to fix the plaster laths to the underside of the rafters, but the most satisfactory method is to lay roofing felt over the rafters, allowing it to sag between the rafters, thereby giving good ventilation to the stones. The felt may be masked by the ceiling beneath.

An old and satisfactory method is to bed the heads of the stone slates on both bottom and top in hair and lime mortar, or else to torch from beneath with the same mix.

As with all roofing, where natural materials are adapted by craftsmen, it requires a skilled tradesman with years of experience to produce a good result on the roof.

Repairs on stone roofing may be carried out by fixing loose stones with copper tingles and solid bedding, and the methods referred to in Part 1 of this article are applicable to stone slates.

REINSTATEMENTS

As a general principle when repairs and reinstatement are made it is recommended that the local tradition, both in the type of material and its use, should be employed.

CHURCH ROOFING: A REPRINT

The series of six reports on Church Roof Coverings (of which the article above is the final part of the third) will be reprinted as a booklet on October 24. Copies may now be ordered from the Publisher, "The Builder," Ltd., The Builder House, Catherine-street, Aldwych, W.C.2. The price is 2s. 3d. (2s. 6d. post free).

DEVELOPMENT OF CAMBRIDGE

University's Views

WITH the opening of the academic year, SIR LIONEL WHITBY, Master of Downing, who has just concluded his first year as Vice-Chancellor of Cambridge University, on October 1 made the customary address to the Senate, in the course of which he made particular reference to the proposals which have been put forward for the future development of the city and surrounding country, and to the thought which had been given by a special committee set up by the university to the proposals and implications of the county development plan.

The aspects of the plan, he said, which are of special importance to the university are that Cambridge should remain predominantly a university town, and that there should be a reduction in the population or, at least, a limitation in its rate of growth, more especially by the discouragement of large industrial development within the city and county. It was clearly essential to preserve the character of Cambridge both as a university town and as the principal market town in an agricultural county.

To achieve this the council of the Senate had recommended that the future development of Cambridge should include an expansion of university facilities on the west side of the river, the maintenance of the central portion of the city as a university "precinct" in its present form, and the development of new, attractive, and adequate shopping facilities toward the east.

These views naturally follow upon the opinion that the proper way in which to relieve congestion in the centre of the city would be to attract traffic away from the centre to new shops elsewhere, a more logical solution, and certainly less expensive than the demolition of valuable property and the building of new roads in the central area. These comments by the council have been sent to the Government.

HENRY VIII WINE CELLAR

Removal to New Site

THE Henry VIII wine cellar, Whitehall-gardens, or the "Crypt," as it used to be called, was not originally an underground chamber, but a wine cellar at ground level, built in Cardinal Wolsey's time, and is one of the few remains of the Tudor Palace of Whitehall which King Henry VIII appropriated from the See of York when the Cardinal was deprived of the Great Seal in 1529. The wine cellar was originally built against an even earlier building and the east wall of the cellar is of late medieval date.

Parliament was given an undertaking before the 1939-45 war that in any development of the site the cellar would be preserved, but on development the cellar was found to interfere not only with the plan but also with the elevation of the new building. It was accordingly decided that the cellar, which is 62 ft. long, 32 ft. wide and 20 ft. high, weighing approximately 1,000 tons, should be removed to a new position. The whole building was first moved 43 ft. 6 in. laterally on a staging. It was then lowered by screw-jacks through a distance of 18 ft. 9 in., and ultimately rolled back 33 ft. 10 in. to its present position approximately beneath its original site.

The position of the cellar is shown in red on the copy of Vertue's plan of the old Palace of Whitehall. It is specifically recorded in State Documents as having survived the disastrous fire of 1698, and was recorded and drawn by the architect, Smirke, in 1810. It was incorporated in later buildings erected on the site, and until the demolition of these buildings, served as a luncheon club for the occupying Government Department. At that time the whole of the brickwork was covered in plaster. The internal dimensions of the room are 56 ft. by 24 ft. The brick stillages along each wall originally supported the wine barrels.

The work of restoration was carried out by the Ancient Monuments department of the Ministry of Works. The work of lowering the cellar was carried out by Messrs. Trollope and Colls under the direction of the consulting engineers, Messrs. Travers Morgan and Partners. The architect was Mr. Vincent Harris, R.A., F.R.I.B.A.

MR. MACMILLAN'S MESSAGE TO BUILDERS

L.M.B.A. North-Western Area Dinner

MR. ERIC BULLUS, M.P. for Wembley North, who was the principal guest at the L.M.B.A. North-Western Area's annual dinner, at Harrow, on September 29, conveyed to the builders a personal message from the Minister of Housing and Local Government, Mr. Harold Macmillan. The Minister's message was as follows:—

"I am glad to have this opportunity of thanking you for your part in the splendid efforts of the building trade in the field of housing. There can be no more satisfying thought when looking at a completed house than the knowledge that not only is it a job well done but it will be a house transformed by the love and happiness of those who come to live in it into a home. Through the efforts of you and your men, families can be given the chance for which many of them have waited so long. Thank you for what has been done. I know I can count on you to keep it up."

Mr. C. P. Bliss presided at the dinner.

In his speech, MR. BULLUS said he felt that the Government's target of 300,000 houses per year would be achieved next year. Referring to the Rent Restrictions Act, he said that the landlords of this country were receiving less than social justice. The rents for seven million people were pegged at the 1939 figure, and whereas in 1939 a quarter of that rent was sufficient to keep a house properly maintained, it now required at least three-quarters of the rent. He hoped that a solution could be reached by joint agreement between the political parties.

HOUSING PROGRESS

Figures for August

THE HOUSING SUMMARY presented to Parliament on October 2 as a White Paper* jointly by the Minister of Housing and Local Government and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during August was 17,821, compared with 14,747 in August, 1951. In the first eight months of 1952, 148,770 permanent houses were completed, compared with 122,798 in the same period of 1951. The total number of houses completed under the post-war programme is now 1,322,265 (1,165,119 permanent and 157,146 temporary).

*Cmd. 8.664 Housing Summary, August 31, 1952, H.M. Stationery Office, price 2d.

BUILDING MATERIALS

Effect of Freedom on Price

THE new headquarters and showrooms of Allied Ironfounders, Ltd., at 28, Brook-street, London, W.1, were opened on October 2, by MR. DAVID ECCLES, Minister of Works.

In declaring the premises open, Mr. Eccles said:—

I am very glad that this company here found a fine set of offices and showrooms, and, I may add, winkled out of someone a licence to equip them. For some years we have been able to sell almost anything we produced in this country. Now competition increases and salesmanship will be all important. There is no need to be afraid of that. Our people are the best salesmen in the world, but they must have good premises where they can show their goods to the best advantage.

Since the war and up to quite recently the prices of some of the products of Allied Ironfounders have been controlled. It could be argued that so great is their share in our building programme that any Government ought to continue to exercise control over their prices.

But that is not my view. I prefer to trust British businessmen to serve the public in freedom. So I arranged with the Minister of Supply to remove price control from the sort of things which Allied Ironfounders make.

I can hear someone say: "What a terrible risk to take." But I do not think so. I was brought up to believe that the best way to make a man honest is to treat him as though he was. And that is why the Government has removed price control from so many building materials and articles that go into buildings.

So far our policy has succeeded. We believe that the prices of these essential articles are more likely to come down in conditions of freedom than in conditions of control. We are ready to take some risks for freedom.

If you will look at the latest figures of material production you will see that building is giving a good account of itself. Output is going up. And why is that? Because Mr. Macmillan and I are releasing the energies of all sections of this great industry.

There is a permanent exhibition in the new showrooms of contemporary cookers, water heaters and space heaters, baths and basins, rainwater and soil goods, and agricultural equipment, which has been arranged for the benefit of the merchant trade, architects, builders and all authorities concerned with housing.

Two Recent Publications

The second issue of information sheets by the company has just been published simultaneously in connection with the book "Heat: Cooking, Hot Water and Heating in Low Cost Houses." The aim of this book is to suggest lines of approach to the problem of providing the heat services for low cost houses—installations which will meet the triple need of cooking, space heating and water heating to the standards now considered desirable, whilst retaining the greatest economy both in capital expenditure and running costs.

These books are not for sale, but copies will be sent, on request, to all those who are seriously concerned with building.

Land Requirements in Residential Areas

HANDBOOK PUBLISHED BY MINISTRY

A HANDBOOK entitled "The Density of Residential Areas," produced by the Ministry of Housing and Local Government, was published on October 9 (H.M.S.O. price 5s.). This handbook, which is extensively illustrated with plans and photographs, deals with the problems of the amount of land required for different projects in residential areas, and in particular for housing.

In a foreword to the book, the Minister of Housing and Local Government, Mr. Harold Macmillan, states:—"In putting out this book I am not intending to suggest that desirable standards must be cut; but rather that, with more flexible ideas about the use of terraces and with better layout, land can be saved without any sacrifice of desirable standards."

General Physical Background

Chapter I deals with the general physical background of the subject. The first section distinguishes four different aspects of density—a classification which is fundamental to the rest of the book and, indeed, to a proper understanding of the whole subject. These four aspects, which are dealt with in more detail in subsequent sections of Chapter I, are:— (i) The question of sufficiency of accommodation. There must be enough accommodation for all the various households. The best housing can become unsatisfactory if it is overcrowded, or if, in other words, the density within the dwellings becomes excessive. (ii) Density of dwellings on the ground, which is concerned with the proximity of dwellings to one another and which involves questions of daylight, sunlight and space for access and amenity. (iii) Density of residential neighbourhoods, involving consideration of the space required for land uses ancillary to housing. (iv) Density over towns as a whole, in which the major issue of compactness versus sprawl is involved.

Density of Accommodation

Section II explores the subject of density within dwellings. It is pointed out that the planner is not generally concerned with the problems of single dwellings but of dwellings in mass, and he requires in consequence some simple method of measuring accommodation in mass, and of stating the numbers of people such accommodation can properly contain. The habitable room is taken as a convenient unit for the bulk measurement of accommodation, and occupancy rate (or number of people per habitable room) as a means of measuring density within accommodation.

Density of Dwellings

Section III deals with the density of dwellings on the ground, or "net accommodation density" as it is defined. Houses and flats are here taken separately, since the considerations of design applying to each are quite different. As far as houses are concerned the main factors affecting density are the type of house (i.e. whether detached, semi-detached or terrace), the garden size and the space required for daylighting, sunlighting, access and amenity. For two-storey houses with a distance of 70 ft. between the rows the theoretical maximum density is about 105 rooms per acre, but this would involve a very close and monotonous lay-out. The introduction of some variety of lay-out and incidental open space would reduce the density to about 72 rooms per acre. For flats, modern ideas of daylighting permit of a great variety of arrangements, but in general it is difficult with heights up to ten or twelve storeys to exceed 200 rooms per acre whilst still preserving the daylighting and a reasonable amount of open space round the blocks. The effects of successive increases of density are shown by diagrams. These are included for purposes of illustration only and are not recommended as suitable lay-outs.

Densities of Towns

Section V deals with density in relation to the town. Consideration is given to the classification of land uses in towns and the relative importance of the main groups of users of land, and a comparison is made between the conditions in a number of existing towns and certain New Towns. With our present knowledge it is difficult to draw general lessons, but it is apparent that most towns present a broadly similar density structure in which densities are higher towards the centre of the town, and that this is the result of a general desire for more spacious conditions in new development coupled with an increase of land value in the centre. These forces are still at work, but it should be remembered that the practice of zoning in rings of decreasing density outwards from the town centre has resulted in much peripheral housing, with the disadvantage of extreme remoteness from the town centre and the main areas of employment.

Density and Cost of Development

Section VI examines the important question of the relationship between density and the cost of development. To keep the analysis within bounds only two aspects are considered; first, the cost of urban rehabilitation in terms of consumption of land, and secondly the effect which increases of density have on the actual financial costs of development. On the first point the general conclusion is reached that whilst considerable areas of land are bound to be required to deal with the overcrowded conditions in our larger towns, there is nevertheless scope for worth-while economies by adopting somewhat higher densities for new development and by paying greater attention to details of design and lay-out. No spectacular increase in density is, however, advised. On the second point it is suggested that on cheap or moderately priced land, development at medium densities is likely to prove most economical, though even here it is thought that a modest increase in density as compared with inter-war practice would not raise total costs unduly.

Development Plans

Chapter II. This chapter relates the groundwork of Chapter I to the process of making a Development Plan for a town. The major problems likely to arise in connection with residential areas are summarised, together with the surveys and plans suggested or prescribed in the various regulations and circulars published by the Ministry. The regulations and circulars are discussed together with their application to the making of Town Maps at 6 in. scale and also to Comprehensive Development Area maps at 25 in. scale.

Day-to-day Planning Control

Chapter III. This chapter deals briefly with some density problems likely to arise in connection with the day-to-day administration of planning control. The cases are classified into groups, and some pertinent questions are suggested which should be asked in various kinds of cases before a decision is reached. The vexed problem of the application of average densities to individual sites is discussed.

The book concludes with a brief summary and appendices containing the Ministry's Schedule of Minimum Street Widths, details of permissible height indicators for testing the daylighting of residential buildings from block plans, and a list of definitions.

BUILDING INDUSTRY NATIONALISATION

Public Control Discussed at Labour Conference

A COMPOSITE resolution on housing, which it was subsequently agreed to remit to the executive committee, was debated at the Labour Party's annual conference at Morecambe last week.

The resolution deplored the Government's building programme, particularly the changes made in the standard of houses being built by local authorities for letting; called on the Party to demand an immediate change in policy on the part of the Government, and instructed the national executive committee, in conjunction with the building industry unions, to prepare a plan for the transformation of the building industry to national ownership based on social service rather than profit; and called on the national executive committee to safeguard the interests of tenants by the maintenance of the Rent Restriction Acts.

Executive's Views

Replying to the debate on behalf of the national executive, MR. IAN MIKARDO, M.P., said that the executive supported the principles of the resolution, but the building industry, which consisted of more than 125,000 firms, was one of the most difficult to organise, to place under public control, or to nationalise. The present executive were anxious to do some practical research into the nationalisation or control of the industry before they committed themselves to a final policy. The industry might be much better suited for competitive public ownership than for nationalisation outright.

The position of property owners was not so bad as they made out in their propaganda. They wanted another straight percentage increase in rents, being left to decide themselves how much would be devoted to repairs. The Labour Party would insist that whatever the method used the increases in rents were inescapably related to the cost of repairs, and would not go to increase landlords' profits.

Mr. Mikardo admitted that the Conservative Government were now building more houses than the last Labour Government, but said that the Conservatives had achieved this at the expense of a cynical and immoral distortion of the nation's economy, in the interests of electoral popularity.

PRICE RINGS

Varied Views at the Purchasing Officers' Association's Conference

AT the annual conference of the Purchasing Officers' Association at Harrogate on October 3, a discussion was opened by MR. A. ELLIOTT, of Manchester, on "The Effect of Price Rings Upon Industry," in which he said that very few firms were free from connections with other concerns in the same line of business, but it did not follow that a trade association automatically implied a trade ring, though it did facilitate the promotion of trading agreements between members.

"When we, as purchasing officers," he said, "come up against a price ring, we might feel that to prevent the continued growth of the offshoot of an association we ought to cut down the main tree. That is an extreme line of action, because we must recognise the value to industry of properly conducted trade associations."

It was, he said, abundantly clear that no ring could operate to the national advantage unless it was acting under the continuous control of its responsibility to the public. Could a ring place such a responsibility before its responsibility to its own members? Could all members of a ring be producers of absolute efficiency? If not, it could not be in the public interest that inefficient producers were protected. Were there any greater price rings than organised labour and was it not analogous to pose the question whether or not a trade union could and did operate on behalf of its members or the general public?

"Economic Price"

There was no formula by which productive efficiency could be measured and no one could define the condition to ensure the highest standard of living. It followed, therefore, that "economic price" was indeterminable, and it was inevitable that price rings or conferences would be viewed with suspicion. "In a buyers' market we establish some control, and it is in the period, as recently, of the sellers' market that price rings become more subject to criticism," he declared.

Many rings and parent associations had formulated conditions of trading which were not calculated to encourage good will between members and customers. "Very often the central core of the association is too far removed from the member's contact with his customer to appreciate how harmful to good centrally inspired conditions, which cut across accepted business practice, can be."

We were certainly going to face increasing competition in world markets in the near future, and it was incumbent upon all members of British industry to gear themselves to the utmost efficiency. It was in the national interest that they should achieve the lowest possible prices and not be tied to prices which were calculated to give the inefficient producer a return. If price rings continued the policy of making prices support the less efficient producers, then purchasing officers were right to fight against them.

MR. W. H. NAPPER, South-Eastern Gas Board (past-president), said they all knew of the frustration they felt when they got a batch of quotations every one of which was the same. It was very annoying. He had a suspicious mind and he wanted to know how those prices were so arranged. Why, he asked, did a number of firms get together to fix prices? Was it fear of competition, or fear of a lessening of profits from competition, or was it a genuine ideal to get the best for the buyer? He did not think the buyer really counted at that stage. The purpose was to make it easy for the manufacturer, but, having created such a condition, it was a comparatively easy matter to vegetate. If one felt perfectly safe —and it was only human nature—one was inclined to rest on one's laurels. He was of the opinion that it gave birth to extravagance.

The pinch was already being felt in the overseas markets, and he had been informed that one particular association was selling its products overseas at a 75 per cent. reduction, but so far as the home market was concerned members had been asked to agree to maintain the existing price schedule. It almost looked as if the home market was subsidising the overseas market.

Danger of Price Wars

MR. C. HUGHES (sales manager, Siemens Electric Lamps and Supplies, Ltd.) said that so-called price rings were born to stop the senseless and disastrous price wars among manufacturers. It was only by the maintenance of fair prices that industry could carry on with its research and with its replacements of plant as it became obsolete. They did not want to get to the stage in this country of shoddy workmanship and deterioration of those products on the reputation of which this country had been built up. Trade associations did not exist to protect the inefficient producers.

He thought that real objection to the so-called price rings could only exist if the suppliers in a particular ring constituted a monopoly in the supply of that particular article. That was a situation that very seldom arose. He felt that the existence of price rings in industry was entirely beneficial because it ensured the supply of the best possible quality goods at reasonable prices. Any association which tried to maintain unreasonable prices always went to the wall.

MR. T. H. SUMMERSON (managing director, Thomas Summerson and Co., Ltd., and chairman of the British Steel Founders' Association) said the history of the price rings which they operated dated from the slump of 1934, when they, in conjunction with everybody else, suffered badly; they did some foolish things, and the most foolish was to allow themselves to be badgered by harpies called buyers into cutting their price to ribbons. As a result of that experience they were driven to organise a price arrangement. One of the results of the old unbridled price competition was that when better times returned they found they had been unable to make any provision to keep their plant up to date. One of the advantages was that in adhering to the price arrangements they gave the greatest consideration to the specialists and so ensured that they got the orders for things they were best qualified to make.

Trade Associations' Responsibilities

MR. T. F. TURNER (English Electric Co., Ltd., Wolverhampton) said there were good things about trade associations. They had become part of the economic fabric of industry, but the question was whether or not they had gone far enough, whether they had seen all their responsibilities, whether they had yet realised that they depended upon the consumer for their further orders, for their profits, and whether they had yet given the consumer sufficient thought. It was time the buyers got together and did the same things as the trade associations. Why should his figures, without his knowledge or consent, be placed in front of a number of other firms with some of which he would not deal?

MR. H. C. EXELL (North Thames Gas Board) said that when he was told by trade associations that there was a 15 per cent. increase he asked if he could have details of how that 15 per cent. was arrived at, but the trade associations replied that it was very difficult to give figures because they had such a lot of different firms and their costs were all different. He would therefore like to ask, "How do we know their prices are reasonable?"

MR. SUMMERSON doubted if the request for details was a reasonable one, for if every buyer wanted to do it it would make a tremendous lot of paper work, and he doubted very much whether it would be practicable.

The meeting was presided over by Mr. D. Wragg (Sheffield), vice-president.

REQUISITIONED PREMISES

Working Party's Proposals

RECOMMENDATIONS that certain local authorities should release requisitioned dwellings by specified dates are made in the interim report of the working party on requisitioned properties in use for housing, published on October 3 (H.M. Stationery Office, 4d.).

The report states that in the financial year 1951-52 the Exchequer had to bear a net charge of £6,900,312 in respect of emergency housing. This was for 131,964 families housed in 86,136 requisitioned properties and 31,169 families in 1,385 ex-service camps. In the previous year just under 4,000 requisitioned properties occupied by 5,600 families were released.

The working party has concentrated in the first instance on measures available to local authorities for housing families in requisitioned dwellings and has not yet considered the families in camps.

It is recommended that the 585 local authorities having one family or less a thousand of the population in requisitioned premises should be asked to release these premises by December 10, 1953. The 156 local authorities having between one and two families a thousand in requisitioned premises should be asked to release the premises by December 10, 1954. Local authorities having more than two families a thousand of the population in requisitioned premises should be asked to make, year by year, the maximum possible reduction in their holdings of requisitioned premises.

In releasing requisitioned dwellings local authorities should give priority to properties which impose the heaviest burden on the Exchequer, and to owner-occupiers suffering hardship through being deprived of their houses.

Ideal Home Exhibition

The Ideal Home Exhibition of 1953 is to be held at Olympia, from March 3 to March 28.

SAND AND GRAVEL EXTRACTION

Notes for the Guidance of Planning Authorities

THE Ministry of Housing and Local Government has issued Circular No. 72/52, "Town and Country Planning: Reports of Advisory Committee on Sand and Gravel." In addition to part 1 of the committee's report, which contains a general survey of certain main problems affecting sand and gravel, the reports* for the following gravel regions have now been completed and copies have been sent to the local authorities concerned: Part 2—Greater London; part 3—Trent Valley; part 4—West Midlands; part 5—Wessex; part 6—West Yorkshire; part 7—Middle and Upper Thames; part 8—Lower Severn; part 9—North East; part 10—North West. (In process of printing.)

The committee are also preparing reports on other gravel regions.

The Minister has reviewed the procedure adopted in considering the reports already issued and has prepared for the guidance of the local planning authorities the following notes about the relationship between the committee's recommendations and development plans.

The committee's reports are intended as "survey material." The areas recommended by the committee for sand and gravel working should be regarded as of primary importance for future production, and development which would sterilise the minerals should only be allowed if some overriding need arises. It will usually be undesirable for the whole of the land needed in the next 50 years or so to be shown in the development plan as intended for mineral working. So far as protection of long-term reserves is concerned, it will be enough to show the areas in the report of the survey and perhaps to mention in the written statement that, in certain areas not shown on the plan maps, there are long-term reserves of sand and gravel, the importance of which will be a major consideration in the control of development. The areas likely to be needed for short-term working will, however, merit special treatment in the plan, either by including them as "land to be used for securing the winning and working of minerals"† (which enables application for working rights to be made to the High Court) or as "land intended for the working of minerals"‡ (which does not attract any compulsory powers, but indicates that it is the local planning authority's present intention to protect the land for mineral working and not to allow other development that would sterilise the mineral). In addition to these notations the local planning authority may wish to consider designating areas required for sand or gravel working as subject to compulsory purchase under Section 5 of the Town and Country Planning Act, 1947.

It is accordingly suggested that the development plan should be prepared on the following basis:—

(1) Existing pits and extensions

(*a*) *Land owned or under the control of operators.*

(i) *Areas for which planning permission has been given.*

The local planning authority will usually be satisfied that this land ought to be specifically reserved for sand or gravel working, and that no other form of development should be allowed. It is not essential for these areas to appear in the plan, but if there are possibilities of conflict with other development proposals they should be shown as "areas intended for the working of gravel" (item (ix)). If such an area is shown under item (ix). it is not necessary to limit it to land likely to be worked in the next 20 years; the whole of the planning permission area should be included.

(ii) *Land for which planning permission has not been given.*

Assuming that the local planning authority consider that such land ought to be reserved for sand or gravel working, it can be shown in the plan as "intended for mineral working" (item (ix)), if the operator is likely to want to start working the land or any part of it within the next 20 years. If it is not likely to be wanted in the next 20 years, adequate protection can in most cases be given by reference to the land in the report of the survey, and the question of an entry in the plan itself can be considered when subsequent reviews of the plan are being prepared.

(*b*) *Land not under the control of operators (whether or not planning permission has been given).*

Where sand or gravel-bearing land is not already owned or leased by an operator, the local planning authority should consider whether and to what extent it should be shown in the plan as "land to be used for securing the winning and working of minerals" (item (i)) in order to enable application to the High Court for compulsory working rights. This notation should only be used where in the opinion of the local planning authority the working is "expedient in the national interest" and rights to work the minerals are not likely to be obtained by agreement on reasonable terms. In general, land should only be shown under this item (i) notation if the operator is likely to need control or ownership within the next seven years (cf. Section 5 (4) (*a*) of the Town and Country Planning Act, 1947). Where an item (i) notation is used, it is important that an appropriate entry should be made on the programme map (otherwise the operator may be unable to prove his case to the satisfaction of the High Court), and it must also be possible to identify precisely the land allocated. For this purpose, a 1 in. map is not adequate, and a larger scale inset map is necessary for an allocation on a county map, with a corresponding inset for the programme map. The question of allocations for land beyond what is likely to be needed in seven years can be considered at the five-yearly reviews of the plan; it will in most cases be desirable to use an item (ix) notation for any land in this category which is likely to be needed after the first seven years and within the next 20 years.

(2) New pits

In addition to the proper extension of existing pits, provision may need to be made in the plan for the opening of new pits. This need may arise where existing pits are becoming worked out and no extension is either possible or permissible, or where an increased demand for sand or gravel in the area is anticipated and cannot otherwise be met, or where it is desirable to enable newcomers to the industry to be assured of suitable land. The extent to which an item (i) or an item (ix) notation is necessary for new pits will vary from area to area and will depend mainly on the reserves already held by operators. If, for example, some have reserves of land sufficient to last only seven to eight years and will then have to open new pits to keep up essential production, specific entries in the plan will usually be desirable and should be reconsidered at each five-yearly review of the plan. It may not always be possible to reach final conclusions on the precise land wanted for new pits within the next seven years or so, but if it is found practicable to earmark sites in the plan itself, local planning authorities should bear the following points in mind:—

(*a*) Where an operator who is likely to want to open a new pit within 20 years already owns or leases suitable land it will usually be appropriate to include the area in the plan under item (ix) as "land intended for the working of minerals."

(*b*) Where an operator does not already own or lease land which the local planning authority are satisfied is likely to be needed for a new pit within the next seven years, allocation of a suitable area under the item (i) notation may be desirable (whether or not a planning permission has been granted) if it appears that application may have to be made to the High Court for compulsory working rights. Alternatively the authority may prefer to designate the land as subject to compulsory purchase.

Some local planning authorities have already submitted their development plans to the Ministry and other authorities are about to do so. It was recognised in Circular No. 101 (issued by the Minister of Town and Country Planning in January, 1951) that it would not be possible to deal fully with all mineral problems in the first development plan and in many cases comprehensive treatment of mineral aspects might have to wait until the plan was reviewed. Authorities are accordingly advised not to delay submitting their plans merely because the reports of the Advisory Committee are not available or have not been fully considered. Where the committee's recommendations cannot be taken into account in the preparation of the first plan, the local planning authority should adopt the procedure outlined in the preceding paragraphs at the first quinquennial review.

In preparing their development plans and the subsequent quinquennial reviews, local planning authorities should bear in mind that although the Advisory Committee have attempted to ascertain the total quantity of land owned by operators in the various areas, they have not examined in detail the question of the life of individual pits, nor have they attempted to draw up a programme of working. Local planning authorities may, therefore, find it helpful to discuss matters such as these with representatives of the industry. The Ballast, Sand and Allied Trades Association have promised to co-operate by supplying, so far as they can, any further information that may be required. Since not all operators are members of the association, however, arrangements for consultation with the industry should be made through the Minister's Principal Regional Officer.

* Copies of the Reports may be purchased from H.M. Stationery Office or through any bookseller.
† Part III of the First Schedule to the Development Plan Regulations (S.I. 1948 No. 1767), Item (i).
‡ Ibid. Item (ix) (which covers "any other proposals of importance").

Some Rural Social Trends

SOME interesting aspects of rural social life were discussed recently by Dr. H. E. BRACEY, M.Sc., at the Town and Country Planning Summer School.

Mr. Bracey began by referring to the decreasing self-sufficiency of rural communities over the past few centuries and the movement of village people to the towns in search of work. He continued:

"The 1951 Census figures suggest that rural migration has been halted—at least in England. Between 1931 and 1951 the total rural district population increase was 20.0 per cent. compared with a total increase for urban districts and municipal boroughs of 21.4 per cent. All but one English county showed absolute increases of total populations which in most instances were greater than for the country as a whole. By contrast, 32 out of 79 county boroughs are smaller now than 20 years ago.

"Comparing Census figures with the Registrar-General's mid-year estimates for 1939, it is clear that the change in favour of rural areas has taken place since that date. But until parish figures are released, it is difficult to tell how much of the rural increase is due to suburban development in areas which for official administration purposes still lie within rural districts. Nine of the ten counties with the highest advances in population are located around London or in the south-east of England. Nevertheless, it is quite clear that many country towns which before the war were barely maintaining their populations now show considerable advances. Estimates of parish populations, supplied to me by the clerks of rural districts of five counties, show that parishes adjacent to sizeable country towns have increased in population but that few rural parishes five or more miles from a town appear to have done so. The Scottish Council (Development and Industry) has recently drawn attention to a drift away from the main industrial areas in Scotland.

DRIFT FROM INDUSTRY

"Many reasons can, of course, be put forward to explain this reversal of pre-war trends. Many industries now operating in small provincial towns are there because of the war. Some are using war-time factories. Others are post-war businesses using skills acquired in wartime factory occupations. Shortage of premises has brought into use buildings in small towns, which were vacant or used for storage in 1939. Recent experience demonstrates beyond doubt that given local employment opportunity small towns can absorb the increase of population due to excess of births over deaths.

"Their new industries give employment to local residents who would have been forced by lack of employment opportunity to move away. Others, e.g. married women working part-time, would probably have stayed at home. The small towns' factories have tapped a third source of labour—the women and girls in cottages and country homes who before the war helped about the house or left home to work in the shops, offices and factories of London or the big cities. The daily movement of workers into many country towns is far larger than before the war.

"A shortage of rural houses for agricultural workers existed even before the war in many areas, and countrymen frequently asserted that buying of country cottages by townsmen had been an important factor in rural migration. But many country cottages had been allowed to become unfit for habitation. At the same time, improvements in hygiene, medical science, and so on, have given us more elderly people.

SMALLER HOUSEHOLDS

"Old age pensions, supplemented where necessary, had made these economically more independent, and allowed many to maintain separate establishments. In one Wiltshire village of 256 houses, I found recently 55 where the householder was on pension or was of independent means, and there was no other earner in the household. It is well known that the average age is higher in rural than in urban areas. It is not always appreciated that the size of the household is smaller and a greater number of houses relative to population is needed."

Mr. Bracey, referring to the provision of village halls and their uses, quoted some figures which he said applied to the county of Somerset. He said:

"Fifteen per cent. of all parishes have no village hall, 55 per cent. have one, 20 per cent. have two and the remaining 10 per cent. have three, four or five. As might be expected, the larger parishes have more village halls and huts, and among parishes with more than 500 people only about 10 per cent. have *no* place of assembly for social gatherings besides church and chapel. The proportion is much higher in smaller parishes.

"Ninety per cent. of all halls belong to the village as a whole and are administered by parish or village trustees, many having been erected as memorials after the 1914-1918 war. Many of those comprising the remaining 10 per cent. have been erected by the efforts of the Women's Institute and British Legion to fill obvious gaps in local provision of places of assembly. Village schools have often to be used for meetings and social gatherings, but they are unsuitable for several reasons, although some disused schools have been adapted successfully. A modern, adequately equipped village hall is a valuable social asset."

Later in his talk, Mr. Bracey said that some time ago, when trying to assess the shopping importance of Wiltshire villages, his attention was drawn to the spacing of villages which had more shops than might be expected for their size. He went on:

"Along some valley lines there was a service village—one with a couple of grocers, a butcher, baker, doctor, garage, and so on—every four miles. Elsewhere, there appeared to be rings of service villages each at a radial distance of from four to six miles from a market town. This significant spacing led me to make a detailed study of representative village services throughout the adjacent county, Somerset.

"From this work the figure of 12 shops appears to have special significance in separating villages of little service importance from those with well-marked service function. At the same time, it must be recognised that some villages with less than 12 shops do function as local centres. In these places, however, though there may be an ironmonger, shoe repairer, and hairdresser, most shops are places where food is sold. There is usually a doctor, but other professions are rare. Garages and public-houses occur in most.

"By contrast, above the line of 12 shops it is noticeable that while food shops predominate, clothing shops are also well represented. Every one of a group of villages each with from 12 to 19 shops has a resident doctor and in about a half there are dental surgeries or chemists' shops. There is a bank in most places and all have garages, public-houses and shoe repairers.

"Twenty shops seem to mark a further grade in the village service hierarchy. Neglecting the few rural parishes adjoining big towns, all places with 20 or more shops have high shops/population rates—rates which are high for all kinds of shops—food, clothing, household and luxury. There is at least one doctor, dentist, chemist and bank. Most have a solicitor and some an auctioneer's office. Garages, hairdressers, shoe repairers are well represented. Many were once market towns; all are rural centres of importance suggesting country towns, yet none possesses urban status."

FARM BUILDINGS

Need for Better Design

THE need for better-designed farm buildings is stressed in the annual report of the Committee for the Preservation of Rural Kent.

The report says: "A representative committee convened by the C.P.R.E. is now sitting to consider and advise on the design of farm buildings. This matter is urgent; for while consideration is given to the visual design of houses in our best landscapes, little or none seems to be devoted to that of farm buildings—which, in general, are not subject to planning control—though their effect is at least equally great.

"These buildings are often badly sited and constructed of the cheapest materials while no attention seems to be paid to their architectural design. With the co-operation of the interests involved—and particularly that of the manufacturers and farmers—it should be possible to improve substantially with little increase in cost.

"The same may be said of the design of oasts which help so often to give the Kent countryside its individual character. It is often possible to adapt old farm buildings to modern use and this applies particularly to oasts."

Memoranda on the design of farm buildings and the adaptation of oasts have been submitted by the committee were presented when the C.P.R.E. held its annual meeting on September 27.

ISSUE OF BUILDING LICENCES

Sir Harry Selley on Local Authorities' Opportunity and Duty

IN a message to the Federation of Master Builders' South-West Regional Annual Conference, which was held at Paignton, on October 3 and 4, SIR HARRY SELLEY, national president, said that the outlook for the building industry was now much more stimulating than when he had last addressed them, and they felt able to breathe a little more freely.

"So far as housing is concerned," he said, "the Minister's last circular to local authorities has gone a very long way to help matters and, when the full implications have been thoroughly digested, we can be sure that any future delays or frustration in the issue of building licences can only be due to prejudice.

"Local authorities have a great opportunity and duty and—rightly so—the public and the building industry will expect them to make full use of it. If I speak bluntly, it is because we have cried in the wilderness for a long time and are impatient of further follies."

There were still very important matters that required early decision. Rent restriction and the plight of property-owners was probably the most urgent. At the present moment the leak was greater than the capacity of the pumps and more property was going out of habitation and use than we could build anew. Repairs and maintenance must always be the greatest of all the tasks undertaken by the builders, and a realisation of this factor would go a long way to right our national economy.

The amounts of Development Charge now being extorted under the Town and Country Planning Act were another aggravation and serious hindrance to the building programme. In the Torquay area particularly, he understood, these were fantastic and everywhere there was complaint. We must do something about this.

"The Minister recently referred to the shortage of labour and timber; our answer is 'free the industry, provide a continuity of building licences, and we will bring the young mechanics into the respective trades and make up any shortage in skilled craftsmen. We can also build good permanent houses and minimise the use of soft timber. The freer the industry, the more we will exercise our ingenuity.'"

NEW MERSEY BRIDGE

£1,300,000 Project Authorised

THE Ministry of Transport informed Widnes Council on October 1 that authority had been given for the construction of a single-tier bridge over the Manchester Ship Canal and the River Mersey between Widnes and Runcorn. Work could start as early as possible in the financial year beginning next March, and a grant of 75 per cent. from the Road Fund would be made towards the cost of £1,300,000.

The decision ends more than 15 years of agitation by transport organisations and the county councils in the north-west for the construction of a bridge. It was hoped to build a two-tier structure which would have cost more than £4m., but sanction has been given only for a modified bridge.

At present the crossing has to be made on a transporter bridge.

HOUSING IN THE MIDLANDS

Minister Praises Efforts

BIRMINGHAM and other Midland authorities are the "blue-eyed boys of housing," said MR. HAROLD MACMILLAN, Minister of Housing and Local Government, in Birmingham on September 29. Figures for completed houses in the region this year were more than 30 per cent. up on last year, he explained, and 50 per cent. more houses had been started.

Mr. Macmillan was speaking at a luncheon in the Grand Hotel before he went to the Midlands Ideal Home Exhibition at Bingley Hall, to inspect a specially-built People's House.

Something like 18,000 houses had been built in the city since the war, he said, "But what pleases me more are the figures of progress during this year. The figure of 2,700 for 1950 has been increased to 4,500 this year. If all goes well, houses completed during 1952 will number one for every 202 of the population, compared with one for every 311 in large cities and towns in the rest of the country."

These figures would be improved even more, said the Minister, and red tape, inhibitions and prohibitions would be cut to help the city.

"Birmingham and the Midlands are the star turn," he added. "They are the blue-eyed housing boys, and we do anything for them because they do so much for us."

Speaking of the People's House, Mr. Macmillan said it saved about £100 a house (compared with the traditionally-designed house) and it reduced the rent by 2s. 8d. a week.

HOUSE BUILDING "DRYING UP"

Situation in the South-West

A WARNING that the demand for private enterprise building might not continue much longer was given by MR. C. H. H. SMITH, principal regional officer in the South-West of the Ministry of Housing and Local Government, to the South-West Regional Conference of the Federation of Master Builders at Paignton, Devon.

Mr. Smith pointed out that, with the two recent allocations, 166 of the 168 local authorities in the region had been given every private enterprise licence they asked for. He added: "When these licences, which are now available, are issued, we shall have evened out the list of applicants with a vengeance.

"Already many local authorities tell me they have no applicant waiting. They have more licences than they can distribute. Within the next month or two all the others will be able to deal with the great majority of applicants who are in any way ready to start."

The numbers remaining in the present queues, he thought, would be comparatively small, certainly not enough to preserve continuity of private enterprise building at the present rate for more than a year. When it came to the point of offering licences, many applicants withdrew, doubtless on the grounds of costs and the difficulty of finding capital.

Mr. Smith declared: "You ought to press strongly for ways and means of stimulating demand for house ownership. That means ways of reducing costs and of obtaining finance more steadily so that more people who wish to own houses can have them."

HOUSING IN THE NORTH-WEST

Operatives' Fears of Labour-only Sub-contracting

REPRESENTATIVES of local authorities of Merseyside and of Lancashire and Cheshire met in Liverpool recently to consider methods of speeding up production of houses. The conference was presided over by Sir Harold Parkinson, chairman of the Regional Housing Production Board, and the members were welcomed by the Lord Mayor of Liverpool, ALD. A. MORROW, who told them the city had built nearly 16,000 dwellings since the war. Non-traditional houses had, he said, proved most satisfactory, while they were producing people's houses at a cost of between £1,231 and £1,424.

It was stated by MR. S. V. MAY, for the operatives, that the acute labour shortages would soon end. For the first time since 1939 some of their men were now looking for jobs. Speaking on the practice of labour-only sub-contracting, he said there was no place in such a world for the apprentice, and the normal and proper intake of boys was prevented. If this was allowed to develop it would soon result in a serious run-down of their skilled labour force. His federation would fight that method by all the means they possessed.

There was a free exchange of views on the various phases of the building industry, and some of the building representatives complained of delay on the part of local authorities in paying their accounts.

FULMER RESEARCH INSTITUTE

Results of Five Years' Work

THE completion of the first five years' activity in industrial research was celebrated by the Fulmer Research Institute on September 30 when a reception was held in the grounds of the converted Edwardian country house, at Stoke Poges, Bucks, which forms the headquarters of the Institute.

The Institute was founded in 1947 by the late Wallace Charles Devereux, C.B.E., to carry out sponsored industrial research. A memorial plaque to Col. Devereux was unveiled at the reception by Lord Hives.

Giving an account of the first five years' work, MR. E. A. G. LIDDIARD, director of research at the Institute, said that during that time the staff had more than doubled and income had trebled. They had taken out 88 patents on behalf of their sponsors, who now numbered over 100, and had published a good many scientific papers. The Institute had solved, and was currently working on, a large number of problems, mainly, but not exclusively, in the metallurgical field.

Referring to the response of British industry to the sponsored research facilities which the Institute offered, Mr. Liddiard said that the value of sponsored research was more fully recognised on the other side of the Atlantic than it was here and it was easier there to sell the idea that research pays dividends.

"As to the future," he said, "it is to British industry that we chiefly look for support and I hope that in another five years' time we shall be able to present a picture in which our service to British industry is very much in the forefront."

Guest speakers at the reception included Sir David Brunt, F.R.S., the meteorologist, and Sir Frederick Handley Page.

UNESCO BUILDINGS

Paris Plans Completed

PLANS for new Unesco buildings in Paris were announced on October 6. They have been approved by an international panel of five architects and will be submitted to the next General Conference of Unesco, opening on November 12 in Paris, which will be asked to give definite approval to the project. The plans were drawn up by two architects, Bernard Zehrfuss (France) and Marcel Breuer (United States), and one engineer, Pier Nervi (Italy).

The site chosen is in the western part of Paris, bordering the Bois de Boulogne between the Porte Dauphine and the Porte Maillot. It measures approximately 2,200 by 280 ft. and is enclosed by the Avenue de la Division Leclerc and the Boulevard Thierry de Martel. There will be three buildings—a 16-storey office building; a central conference building; and an auditorium for general conference plenary sessions with an amphitheatre. The form of the office building will be that of an elongated rectangle in harmony with the basic plan of Paris. It will be about 200 ft. high, 305 ft. long, and 55 ft. wide.

In their report the architects point out that, despite its proposed height, the 16-storey building will be lower than the principal monuments along the great transverse axis of Paris, and 35 ft. lower than the Arc de Triomphe.

The central building will include rooms for conferences and for the Executive Board, the Conference Secretariat, and Press, radio and television facilities. It will be about 30 ft. high, 220 ft. wide and 370 ft. long. Finally, the auditorium has been conceived to serve as a meeting-room adaptable for presentation of concerts and theatrical and cinema performances. It will be about 60 ft. high, 128 ft. long, and 175 ft. wide.

Architectural Problems

The architects state that it was necessary to conceive the building not only as a utilitarian structure but also as an architectural embodiment of a great idea. "The tradition of Paris, a city in which every monument bears witness to each period's artistic expression, requires that the Unesco building should also be an expression of contemporary living art. It should represent the trends of a living architecture, and developments throughout the world should be synthesised in this building to express the architectural spirit of our time." This idea will be reflected in the visual effect created by the contrast of the vertical and horizontal elements of the two main buildings. The architects have also sought to achieve this æsthetic impact by simplicity and by avoiding any form of expression which might quickly become out of date.

Painting and Sculpture

The conception of the project includes painting and sculpture as an integral part of their architectural plan. It is the architects' intention to establish close collaboration with painters and sculptors at the very beginning of the preparation of the final plans and in this way achieve a synthesis of the arts in a harmonious ensemble. The construction of the buildings is expected to take two years. Thus, it will not be until the summer or the autumn of 1955 that Unesco would be able to occupy the premises. It is estimated that the cost of construction will be $7,678,000, or 2,687,300,000 French francs.

FOREMANSHIP TRAINING

New Course at Huddersfield

THE growing realisation of the importance of improved foremanship in the building industry and the need for a rapid expansion of formal training in supervisory skills and administrative practices for both newly appointed and established foremen, were referred to by MR. D. E. WOODBINE PARISH, president of the L.M.B.A. and chairman of the Standing Committee for the Training of General Foremen, during the inaugural lecture of a new Foremanship Course at the Huddersfield Technical College on September 30. The contribution to increased productivity and cost reduction which could be made by improved standards of supervision and site organisation could not be over-emphasised, he said. In the past the attitude of most general foremen, many of whom had been promoted to supervisory rank quite fortuitously by some form of hit-and-miss process, had been severely limited by a lack of clear understanding of, and training for, the supervisory rôle.

The Notes for the Guidance of Lecturers issued by the Standing Committee indicated in some detail the very large field of general and specialised knowledge which a top level general foreman should regard as a minimum for the proper conduct of a contract. Such notes had been prepared upon the assumption that a student undertaking a course of Foremanship Training, as recommended by the Committee, already had some knowledge of all the basic trades and had pursued a recognised course of study up to Ordinary National Certificate or Final City and Guilds Certificate standard, or held a similar technical qualification. Experience to date showed that the numbers of students with these qualifications were limited and that, as a result, in addition to the recommended course, there was an urgent need for a preparatory course in general technical subjects to provide both potential and established foremen with a broader knowledge of building construction and allied subjects.

"A comprehensive study and fuller understanding of the supervisory rôle and the wide range of duties and responsibilities it involves are of the greatest importance to the industry," Mr. Woodbine Parish concluded. "The foremanship courses and discussion groups introduced during the past few years at various colleges throughout the country, some of which are of an experimental nature, may well provide important information on this very vital aspect of industrial development and will considerably help in indicating more clearly the trend of the future supervisory training needs of the industry.

"The early formation of a Foreman's Association in the West Riding on similar lines to those recently established in other parts of the country would be of immeasurable benefit in stimulating a demand for more foremanship training courses in the Yorkshire region."

BUILDING EDUCATION

A CONFERENCE on building education will take place at the headquarters of the London Master Builders' Association on October 17. Similar conferences were held in 1950 and 1951 at which views were exchanged between representatives of building colleges, the Ministry of Education and employers. Such was the success of these discussions that it has been decided to make them an annual event.

BRIGHTON HOUSING

Minister Opens Exhibition and 3,000th House

IN the presence of a large company of local government representatives from various districts, MR. HAROLD MACMILLAN, Minister of Housing and Local Government, formally opened a housing exhibition in the Pavilion Theatre, Brighton, on October 6, and shortly afterwards the company went to the Bates Nursery estate, Lewes-road, Brighton, where the Minister opened the 3,000th post-war house erected by the Town Council.

The Minister, who was introduced by the Mayor of Brighton, Alderman Miss D. Stringer, complimented Brighton on its splendid record of building for the period. In the exhibition were plans and pictures of houses built by the different firms, and of primary and secondary schools, also specimens of new designs of what he called "People's Houses." Brighton had anticipated him, and also his predecessor, and while they had talked, Brighton was building them. They had built between 200 and 300 before the official launching of present housing plans. The exhibition showed ideas which the Ministry hoped to get across. "We are not trying to force any designs or single idea on any local government," he said. "We believe in local government. We have tried in the various designs to show what can be done." He added that they tried to make less call in those houses on the material and labour and money available. There would be more savings which they would try to bring about. Not standardisation, but to make houses better and cheaper, was the aim.

OBITUARY

Sir James Barr, PP.R.I.C.S.

We regret to announce the death, which occurred in Glasgow on October 6, of Sir James Barr, PP.R.I.C.S., of Ranfurly House, Bridge of Weir.

A. E. Ryeland

We regret to announce the death, which took place on October 2, of Mr. Albert Edwin Ryeland, director of Messrs. E. Boydell and Co., Ltd., of Old Trafford, a company with which he had been connected since its inception.

Geoffrey T. Hollis

The death is also announced of Mr. Geoffrey T. Hollis, chairman of Hollis Bros., Ltd., of Hull. Son of one of the founders of the firm, Mr. Hollis, who was 59, moved to London in 1923, following service in the 1914-1918 war, and was largely instrumental in building up the hardwood laying side of the firm's business. He had held many offices in the timber trade's associations.

R. A. Greenwood

The death of Mr. R. A. Greenwood occurred on June 23 at his home in Stoke-by-Clare, Suffolk. His age was 77. For many years Mr. Greenwood was a recognised authority on plumbing, and as a native of Manchester served his apprenticeship as a plumber with Mr. Frank Williams. In later years he patented the "Grevak" anti-siphon trap, which is today being manufactured by Messrs. Greenwood and Hughes, Ltd., of Kingsway, W.C.1.

HOUSING MATERIALS

British Standards Revised

TWENTY per cent. of the British Standards which are summarised in the B.S. Handbook (No. 3) for building materials and components have been substantially revised, or modified in important detail, since the book was published in January, 1950. A number of completely new standards affecting the building and allied industries has also been issued.

These are the natural consequences of the British Standards Institution's policy of replacing or revising specifications as often as may be desirable in the light of trade requirements and advancing knowledge.

Some of the most important building standards are affected, including such long-established specifications as: B.S.65, "Salt-glazed ware pipes"; B.S.340, "Pre-cast concrete kerbs"; B.S.417, "Galvanised mild steel cisterns"; B.S.657, "Common building bricks"; B.S.699, "Copper cylinders" and B.S.899, "Copper sheet and strip"; and B.S.1053, "Water paints and distempers."

In order to bring the Building Handbook up to date, the B.S.I. has therefore published a separate Addendum volume running to some 165 pages.

Nearly a third of the book is devoted to summaries of 14 new standards issued between January 1, 1950, and August 31, 1952. In the next 100 pages are to be found new summaries of 30 more standards which have been extensively revised in the same period. These summaries must replace those contained in the 1950 Handbook. Finally, the Addendum includes gummed amendment slips affecting 26 further summaries of standards, to which significant detailed changes have been made.

Since the value of any reference book depends entirely upon its accuracy, the Addendum volume is strictly necessary to all users of the 1950 edition of the Building Handbook. Its full title is "Addendum No. 1, 1952, to B.S. Handbook No. 3," and it is available at 12s. 6d. from the B.S.I., at 24, Victoria-street, S.W.1.

For the benefit of those who may still be using one of the earlier editions of the Handbook (which are now obsolete and should be scrapped), copies of both the 1950 edition and of the new Addendum may be obtained at the special combined price of 31s. 6d.

NEW INVENTION

A Pneumatic Door Buffer

A PNEUMATIC DOOR BUFFER of a new type has been devised and placed on the market by H. G. Thompson and F. K. Sargent, of Reading. A practical test of this "Kimtox" buffer has shown that it does the job it has been designed for well. It effectively takes the "slam" out of a door however hard it is pushed to, whether by wind or by hand, yet it does not prevent the door from being closed quickly behind one, an advantage the "Kimtox" possesses over some conventional types of hydraulic door buffers. The device is particularly useful in protecting a glass door from damage by slamming.

Opening of Hurlingham Park

Dr. Edith Summerskill, M.P., declared open to the public the first section of the new Hurlingham Park on October 8. This section covers about 4½ acres and was occupied by the stables and paddock of the Hurlingham Polo Club until May, 1950, when it was acquired by the L.C.C.

BUILDING IN THE ARCTIC

Canada Establishes a "Permafrost" Research Station

PERMANENTLY frozen ground creates many problems for building operations in the northern half of Canada. Field study of some of these problems has been started by the Division of Building Research of the National Research Council. A small experimental "permafrost" research station is now being established at Norman Wells, N.W.T., with the co-operation of Imperial Oil Ltd., who operate a small oil field and refinery at this far northern outpost on the Mackenzie River just south of the Arctic Circle.

"Permafrost" is the name given to ground which is always frozen to great depths. If the ground consists of soil, the soil will thaw out during the heat of summer to a depth of a few inches. Usually such soil is covered with vegetation (commonly called muskeg) and this acts as an insulating blanket, preventing summer heat from penetrating very far.

If this surface cover is removed, as it must be for many building operations, conditions are immediately changed. The "permafrost" will be thawed to much greater depths and so may release a lot of water, which often causes trouble in road construction and in the foundations of buildings.

Such problems constitute one of the main groups of peculiarly Canadian building problems which the N.R.C. Division of Building Research has been studying. Present activity in the north of Canada lends urgency to the solution of "permafrost" building problems. For two summers, therefore, the Division has participated in field studies of "permafrost" in the Mackenzie River valley.

On the basis of these investigations, Norman Wells was selected as the most suitable location for the start of actual field research. Naturally, there are many, in both Canada and the U.S.A., with extensive construction experience in the north, and it is hoped to utilise their valuable practical experience in planning the experimental installations for Norman Wells which in their turn will assist in the solution of problems still unsolved.

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NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Roofwell, Ltd. (511127.) Regd. Sept. 2, 253, Cromwell-rd., Peterborough, roofing contractors, etc. Nom. cap.: £5,000. Dir.: Mrs. E. Munden, 253, Cromwell-rd., Peterborough.

William H. Paul, Ltd. (511164.) Regd. Sept. 3, 22, Roose-rd., Barrow-in-Furness, slater, plasterer and bldr. Nom. cap.: £100. Dir.: W. H. Paul, 18, Yarlside-rd., Barrow-in-Furness.

Canonbury Construction Co., Ltd. (511168.) Regd. Sept. 4, bldrs. and contractors, etc. Nom. cap.: £1,000. Sub.: I. L. L. Jones, 113, Beaufort-st., Chelsea, S.W.3.

C. Chandler and Co., Ltd. (511171.) Regd. Sept. 4, 227, Victoria Park-rd., E.9, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: C. H. Chandler, 227, Victoria Park-rd., E.9.

H. Dowling and Sons, Ltd. (511178.) Regd. Sept. 4, 27, High-st., Rayleigh, Essex, bldrs. Nom. cap.: £10,000. Dir.: A. E. Dowling, 9, Crown-hill, Rayleigh, Essex.

Weeks, Loveridge and Co., Ltd. (511200.) Regd. Sept. 4, 55, Moorland-rd., Weston-super-Mare, bldrs., contractors, etc. Nom. cap.: £2,000. Dir.: H. L. Weeks, 7, St. Nicholas-rd., Uphill, Weston-super-Mare.

Metaframe Construction Co. Ltd. (511227.) Regd. Sept. 5, Terminal-hse., S.W.1, bldrs., etc. Nom. cap.: £100. Dir.: R. H. Linton, 6b, Derby-st., W.1.

John H. Parsons (Kings-Heath), Ltd. (511336.) Regd. Sept. 11, 92, High-st., Kings-Heath, Birmingham, 14, bldg. contractor. Nom. cap.: £15,000. Dir.: J. H. Parsons, 165, Russell-rd., Moseley, Birmingham, 13.

Taylor, Wightman and Co., Ltd. (511369.) Regd. Sept. 12, Britannic-hse., High-st., Hucknall, Notts, bldrs., contractors, etc. Nom. cap.: £10,000. Sub.: A. M. Taylor, Peacehaven, Newstead Abbey-park, Linby, Notts.

Cutmore and Newell, Ltd. (511385.) Regd. Sept. 13, 232, Grosvenor-ter., S.E.5, bldrs., contractors, etc. Nom. cap.: £100. Dirs.: S. T. Newell and Mrs. A. M. Newell, 82, Crofton-rd., S.E.5.

E. A. Tibbett, Ltd. (511388.) Regd. Sept. 13, 28, Leighswood-ave., Aldridge, Staffs, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: E. A. Tebbett, 297, Erdington-rd., Aldridge, Staffs.

W. T. Witney and Co., Ltd. (511424.) Regd. Sept. 13, The Spur, Bushey-rd., Raynes Park, S.W.20, bldrs., contractors, etc. Nom. cap.: £100. Dir.: W. T. Witney, 287, Martin-way, Raynes Park, S.W.20.

Southern Counties Plastering, Ltd. (511480.) Regd. Sept 17, Clapham S.R. Goods Depot, Clapham High-st., S.W.4, plasterers, etc. Nom. cap.: £1,000. Dirs.: G. W. Berrington and Mrs. J. W. Berrington, 10, Brickfield-rd., Thornton Heath, Surrey.

C. Hobbs (Herne Bay), Ltd. (511467.) Regd. Sept. 17, 127, Reculver-rd., Beltinge, Herne Bay, Kent, bldr. Nom. cap.: £1,200. Dir.: C. Hobbs, 9, Osborne-gdns., Herne Bay, Kent.

Winsford Construction Co., Ltd. (511568.) Regd. Sept. 19, 24, Hamilton-sq., Birkenhead, Ches, bldrs. and contractors, etc. Nom. cap.: £100. Dir.: T. V. Prosser, Dingleield, Pipers-la., Heswall, Ches.

ASBESTOS-CEMENT PRESSURE PIPES

National Building Study No. 15

THE British Standard No. 486 for asbestos-cement pressure pipes was published in 1933, and since that time asbestos-cement pressure pipes, usually coated internally and externally with bitumen, have come to be used widely. The Building Research Station has completed a general survey of their behaviour in use and the results are now published in National Building Study No. 15, "A Survey of the Behaviour in use of Asbestos-Cement Pressure Pipes," available from the Stationery Office, price 2s. 6d.

The survey is based on consultation with some 17 users, mainly local authorities, and on the examination of samples of pipes and joints which have been in service for varying periods of time and under varying conditions. It covers the use of pipes in various types of soil, both corrosive and non-corrosive, and their behaviour in carrying corrosive and non-corrosive waters has been studied. The mechanical behaviour of the pipes, including their susceptibility to damage in transit, on the site and in service, has also been studied, and the qualities and behaviour of various types of joints used with the pipes have been considered.

NEWS IN BRIEF

Milton Ernest Water Tower

In our last week's issue was described the moving of a concrete water tower near Bedford. The work was carried out for the Bedford Rural District Council under the supervision of the Council's consulting engineers, Messrs. Binnie, Deacon and Gourley.

All Saints' Church, Hanworth

The stained glass for this church (illustrated in our last issue) was designed by Mr. A. E. Buss, of Messrs. Goddard and Gibbs, of 53, Kingsland-road, E.2. We regret that authorship was wrongly attributed in the article.

Research Council Appointments

The Lord President of the Council has appointed Sir Wallace Akers, C.B.E., F.R.I.C., and Sir Philip Johnson, to be members of the Advisory Council for Scientific and Industrial Research. The appointments date from October 1. Professor P. I. Dee retired from the Council on September 30 on completion of his term of office, and Sir Hugh Warren has resigned his membership because of the pressure of other duties.

Building Lectures

Two series of post advanced lectures have been arranged to take place in the City of Liverpool College of Building during the coming session. One series, arranged by the Department of Building and Professional Studies, will cover subjects relevant to building, civil and structural engineering, and architecture. The other will be for the building trades, and is arranged by the Department of Building Trades. Further particulars are available from the Principal of the College, Clarence-street, Liverpool, 3.

Builders' Dinner

The County of London Branch of the Faculty of Building held their annual dinner on September 26, at the Horseshoe Hotel, Tottenham Court-road, W.1. The chairman of the branch, Mr. A. J. Hayes, presided. The toast of the "County of London Branch," was proposed by the president of the Faculty, Mr. B. C. Brook, and responded to by Mr. Hayes. The toast of "Our Guests," was proposed by R. H. Lowe, and responded to by the guest of honour, Mr. A. L. Watts, editor of "Illustrated Carpenter and Builder."

E.J.M.A. Meeting

At a recent meeting of the council of the English Joinery Manufacturers' Association, under the presidency of Mr. M. van Westerborg, among the matters reported on and discussed were the evidence given by the Association before the Bailey Committee, the importation of prefabricated schools from Finland, the proposals of the Government with reference to the house-building programme and the Building Exhibition of 1953. It was arranged that the next meeting should take place on January 7, 1953, and as this was probably Mr. van Westerborg's last appearance in the chair as president at a Council meeting, a hearty vote of thanks was paid to him by the members of the council for the work which he had carried out during his two-year term of office. The annual dinner-dance of the Association is being held on November 26, to be followed by the annual general meeting the next day.

Housing Policy Innovation

Caistor (Lincs) R.D.C. wants to see both private and council houses "side by side." The council has accordingly selected a site for six privately built houses at the picturesque village of Tealby. If application is made for these, then the council will build a further 12. At a recent meeting of the R.D.C., the chairman, Major A. E. Wright, said the new departure could be adopted for other villages, and would show how private builders and local authorities could work hand-in-hand.

Residential Club

An account of the unveiling of the foundation plaque at the Cecil Residential Club for Old Ladies, North Kensington, London, in November last, is given in the 24th and latest report of Cecil Houses—the organisation which provides accommodation and other amenities for poor women. This new club, which is due to open next year, has been designed by Mr. Percy A. Kelly, L.R.I.B.A. It will accommodate 72 old-age pensioners in 18 dormitories.

Training of Apprentice Painters

Over 100 teachers of decorating, paint manufacturers, decorators, contractors and trade union officials discussed the recruitment and training of painting apprentices at the conference organised by the Association of Painting Craft Teachers at Harrogate in May last. The official report of the Conference addresses and discussions, a 121-page booklet, has now been issued, and copies may be obtained free on application to the secretary, Mr. Charles H. Eaton, Morden Cliff, 107, Morden Hill, London, S.E.13.

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Ten-storey Flats at Liverpool

Liverpool City Council has approved the Housing Committee's scheme for the redevelopment of the central area of the city which it is estimated will cost about £10,000,000 and which will include a number of multi-storey blocks of flats, including one of 10 storeys. It is hoped to build this at the same time that a similar block is being built in another part of the city.

Decorating Competition

The painting and decorating competition organised by Thomas Parsons and Sons, Ltd., 70, Grosvenor-street, London, W.1, to mark the completion of the company's 150th year, is now open to students at technical schools outside the London area and the closing date has been postponed until December 31 next. Details of this competition were published in *The Builder* of May 30 last, and copies of the revised rules can be obtained from the above address.

Development at Bootle

During a recent inspection of Bootle's (Lancs) housing estate it was announced by Mr. W. A. Harrison, Borough Engineer, that the town was planning a large-scale development to provide for 1,800 houses and six schools, which, with shopping centres, health centres, libraries and other amenities, will cost about £3m. To-day, he said, they were producing housing returns comparable with those of any authority in the country. The Corporation owned about 3,700 houses, and had spent £180,000 on maintenance works on them since the war.

Bleak House for Sale

Bleak House, Broadstairs, where Charles Dickens wrote a great part of "David Copperfield" and other novels, is to be auctioned on October 16. The novelist lived there for several years up to 1849. The house stands in a one-acre garden on a commanding position on the north cliff, has nine bedrooms and a gardener's cottage. Parts of it are said to be over 400 years old. In Dickens' time, the house was known as "Fort House" and was a former residence of another great Victorian—Wilkie Collins.

Changes in Transport Bill

The Road Haulage Association recommends several alterations to the Transport Bill before its re-introduction to Parliament. One of them is the abolishment of the restriction of free enterprise hauliers to a radius of 25 miles, or, failing this, a more generous issue of permits to exceed this radius. Another recommendation is the reconsideration of the proposed levy. These and other points are included in resolutions to be discussed at the Association's annual conference at Blackpool commencing October 14, when a statement of policy will be made.

Wolverhampton's Council Houses

Wolverhampton Housing Committee have given preliminary consideration to the sale of council houses and advise the council that they wish to go thoroughly into the many questions involved and will report on the matter in due course. Applications for council houses in Wolverhampton are accepted from persons who either work or live in the borough. In future further applications will be accepted only from persons who live in the borough, the only exception being the cases of applications from people who work in the borough but who live more than five miles from the town centre.

OVERSEAS BUILDING

[From Our Own Correspondents]

Australia.—Several Australian car firms are to expand business in the new year, and extensions to premises and new premises are among the schemes being discussed at the present time. The Arrow Motors Co., of Sydney, is planning to spend over £50,000 on the construction of a new car park in the Double Bay area. Standard Cars, Ltd., of Australia, is to build cars for distribution in the Eastern Hemisphere, and this will involve large factories having to be built, as well as laboratories, sheds and all the usual buildings required for automobile building and assembly. About £5,000,000 is involved in this venture. . . . Australia's Snowy Mountains hydro-electric scheme has so far cost about £19,000,000. Most of the expenditure has been for the preparatory work essential before large-scale construction operations can proceed. A sum of £4,000,000 has been spent on townships, depots and temporary power-stations. The Snowy Mountains Authority has completed investigations and designs for works expected to cost £100,000,000 by 1957. By 1954 the Guthega project on the Upper Snowy River, which is being carried out by a Norwegian contractor, is expected to supply 60,000 kilowatts. There should be scope here for British manufacturers who are interested in following up these projects.

Australia.—An English engineering company, Allied Iron Foundries, Ltd., is extending its activities to Australia. The company is building a factory in an outer industrial suburb of Melbourne for the manufacture of cooking appliances and it expects to be producing within two years. The factory is being built on 31 acres of land and is expected to be more modern than the company's English plant.

**Canada.*—The U.K. Trade Commissioner at Montreal has received an inquiry from the Hillcrest Motors, Ltd., Blowers-street, Halifax, N.S., for a source of supply of a prefabricated building. They propose the erection of a building on the outskirts of Halifax of 200 ft. by 200 ft., with a showroom at one end. The firm would be prepared to use a prefabricated building, and U.K. firms who are interested are requested to write to Mr. Frank Zebberman, president of the company, at the above address.

Telephone inquiries to the Board of Trade, Commercial Relations and Exports Department, Trafalgar 8855, ext. 2418.

Iraq.—The Iraqi Development Board has invited tenders for the building of a barrage across the Tigris at Samarra, under sluices, a regulator for the Wadi Tharthar inlet channel, and other works. The Board has also made a grant for the building of tobacco stores at Sulaimanieh and elsewhere. The oil industry is planning expansion and a great deal of building is anticipated for this industry. An Oil Board has been set up to deal with all matters pertaining to the industry. Approaches should be made to them regarding future building operations.

New Zealand.—The London firm of Sir Alexander Gibb and Partners has been authorised by the New Zealand Government to submit a design for the construction of the Atiamuri hydro-electric power scheme on the Waitato River. The scheme is the fourth in a chain of 10 stations expected to be operating by the end of 1957. The firm will also arrange for the calling of tenders. These will include, in addition to civil engineering work, the provision of turbines, generators and electrical equipment for power-houses.

Norway.—There may be business for British firms in the large aluminium plant construction work being undertaken in Norway at a cost of about £12,000,000. The plant, financed by American capital, is being built at Sunndalsora in West Norway. Size of the plant can be estimated from the yearly output, which is to be in the region of 40,000 tons. At present, some 800 men are working on the site. By next summer the number will be about 1,500. Part of the 1,300-foot quay has been completed and two cranes installed. The steel frames for the two main factory buildings are to come from abroad, and, according to plans, will be erected by next autumn. Installation of electric furnaces will take place next year. Production is scheduled to commence early in 1954.

Thailand.—Thailand, according to reports, is requiring loans for development schemes from the World Bank. It is thought that some $25,000,000 have been requested for electric power development schemes alone. Other projects include railway development, irrigation, harbour construction, modernisation of mines, and highway construction. There is a four-year highways development plan under discussion at the moment. The construction of six major highways is envisaged. Foreign firms will be asked to tender. A large hydro-electric station is to be built at Tak.

* From the Board of Trade Special Register Information Service.

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BUILDING CRAFTS TRAINING SCHOOL

Prize Presentation

ALDERMAN C. L. ACKROYD, Master of the Carpenters' Company, presided at the annual prize-giving of the Building Crafts Training School, held in Drapers' Hall, on Tuesday. Among those present were Sir Banister Fletcher, Mr. D. E. Woodbine Parish (President L.M.B.A.), Mr. John Galbraith, Mr. G. H. A. Hughes, Mr. Martin S. Briggs, Col. W. W. Dove, Mr. W. H. Ansell and Mr. H. G. Tilley (Director of the Schools). A luncheon preceded the prize-giving and the successful apprentices were afterwards entertained to tea.

In his address to the students, SIR BANISTER FLETCHER, D.Lit., M.Arch., PP.R.I.B.A., chairman of the Education Committee, said the building industry was fundamentally a craft industry concerned with creative production which called for men of high character and ability and it was to train craftsmen in the building industry that the Building Crafts Training School existed; first of all to awaken and strengthen their capacity to learn and then to develop their capability to work. "The education of apprentices of all kinds," he said, "is to-day regarded as a most important object of the educational system of the country and there is no excuse for an apprentice to be ignorant in the theory of his craft if he seizes the opportunities which are open to him.

"Work is the basis of all achievement," he continued. "The harder you work the more certain you are to forge ahead. Take advantage of the time your competitors are playing and you will soon leave them behind." In conclusion, Sir Banister paid warm tribute to the work of the Director.

A Revolution in Construction

Presenting his report for the past session, MR. TILLEY said: "We have seen during the present century a complete revolution in forms of construction and these are eminently the days of machinery, not only machinery in building, but also machinery at sea, machinery on the road, and in the air. We do not wish to belittle the use of machinery—we shall, however, do well to remember that all machinery is itself the outcome of the free and independent initiative of the human brain directing the manipulations of the machine which is the substitute for the human hand."

The following is a list of prizewinners:—

Silver Medal and £5 5s. presented by the Incorporated Clerks of Works of Great Britain, E. G. Gannicott. Barnes Prize (value £6 10s.), Alan G. Frakes.

Carpenters and Joiners: Certificates and £3 3s.—E. L. Rossiter, K. Warren, B. Warren. Certificates and £2 2s.—J. E. Bedlow, K. D. Hosier, D. West, C. D. Attwood, R. Phelps. Certificates.—C. Murphy, R. Cross, J. M. Blackie, J. D. Norris, D. W. Rudge, J. A. Burnett, J. F. MacIntyre, F. A. Walker, D. J. Penfold.

Bricklayers: Certificate and £2 2s.—W. Boxall. Certificates—A. F. Hunt, G. F. Martin.

Stonemasons; Certificates and £2 2s.—E. F. Bedford, D. A. Colcombe, P. R. Hards. Certificates.—W. T. Johnson, M. R. Nottage.

Plumbers: Certificates and £3 3s.—W. H. Burns, I. McDougall. Certificates and £2 2s.—E. W. Birt, M. R. Cannon, H. Morris. Certificates—R. F. Ball, C. W. Downes.

Painters and Decorators: Certificates and £2 2s.—W. T. Wildey, A. H. Ferris. Certificates.—K. F. Densham, J. Jordan, A. Swinson.

The Shoreditch and Finsbury Branch of the Federation of Master Builders provided £10 for prizes.

TRADE NEWS

New Machinery Store

The F.J.E. Machine Centre at Islington Park-street, N.1, was officially opened on September 17 by Mr. H. A. Johnson, managing director of F. J. Edwards, Ltd., 359-361, Euston-road, N.W.1.

Trade Agreement

An agreement has been concluded by R. A. Lister and Co., Ltd., Dursley, Gloucestershire, for the sole distribution of the Lister range of diesel engines for the United States, with the National Supply Co., whose head office of the Engine Division is in Springfield, Ohio, with branches in various parts of the country.

New Branch Office Opened

The British Aluminium Co., Ltd., have opened a Southampton branch office, to handle sales of unwrought and fabricated aluminium and aluminium alloy in the counties of Sussex and Hampshire. Mr. W. H. Marston has been appointed area representative, and the address of the new branch is 20, Brunswick-place, Southampton (Tel.: Southampton 76780).

Blended Illumination

The F 61016 combined mercury and tungsten lighting fitting made by General Electric Co., Ltd., Magnet-house, Kingsway, W.C.2, has been designed to give similar light distribution from both light sources so that almost perfect colour blending is obtained. Installation is simple, and the lampholders are arranged for two fixing positions, so that any combination of lamps can be used.

A New Profit-sharing Scheme

Wolf Electric Tools, Ltd., Hangar-lane, W.5, have recently introduced a profit-sharing bonus. The scheme is devised to underline the community of interest between capital, labour and management, and to promote the sense of partnership between them. Manual workers and clerical staff can all become eligible to participate in the bonus which takes the form of a "dividend," and individual shares are varied with normal timeworking earnings and years of service with the company.

Road Transport Display

Displayed on the stand of Dodge Brothers (Britain), Ltd., at the Commercial Motor Transport Exhibition which took place at Earls Court recently, was their new 7-ton truck, at present for export only. This model is fitted with a six-cylinder 119 b.h.p. petrol engine, in unit construction with a single dry-plate clutch and five-speed gearbox. A similar chassis, powered by a 110 b.h.p. diesel engine, it is understood, will be available for the home market shortly.

African Tour By Air

A continent-wide market investigation by the Bristol Aeroplane Company (Weston), Ltd., makers of "Bristol" permanent aluminium buildings, began on October 1, when Mr. H. J. Rush, sales manager of the company, arrived in Johannesburg for a 10,000 miles tour of the continent by air. It will last eight weeks and will take him from Johannesburg to Freetown via Durban, Cape Town, Salisbury, Lusaka, Zomba, Nairobi, Lagos and Accra. At each point he will visit architects, builders, and officials of local authorities to discuss application of the "Bristol" unit construction system to their accommodation problems.

The SCOTTISH BUILDER

Glasgow Housing Applications

IN a circular to members of Glasgow Corporation the convener of the Housing Committee, Mr. James R. Duncan, states that the Housing Special Sub-Committee on Letting have considered the possibility of reducing the volume of inquiries in connection with housing applications.

Applicants who applied later than 1944 cannot normally be considered in the meantime, states the circular, and the Department have therefore been instructed by the committee not to communicate to any such applicants that representations have been made on their behalf. Where a member of the corporation asks to be advised personally about a particular application it is assumed that, if necessary, he will communicate with the applicant. In normal cases either the applicant or the member of the corporation will be advised by the Department.

Rents of Scottish Council Houses

THE AVERAGE RENT of a post-war council house in Scotland last November was 11s. 5d. per week or £29 12s. 11d. per year. This was an increase of about 6½d. per week or £1 8s. 7d. per year on the average of two years before. All council houses, including temporary houses and pre-war houses had, last November, an average rent of 9s. 2d. per week or £23 17s. 7d. per year. The comparable rent in 1938 was £18 17s. 7d. Thus, between 1938 and 1951 council house rents in Scotland increased on average by £5 a year, slightly under 2s. a week. These are some of the facts revealed in "Rents of Houses Owned by Local Authorities in Scotland, 1951," a White Paper prepared by the Department of Health for Scotland (H.M.S.O., price 1s. 6d.). The figures given in the White Paper relate to November, 1951, and since then many authorities are known to have increased their rents.

Wide variations between the average rents of different authorities are shown in the White Paper. For post-war houses they range from £50 a year to £17 5s. 5d. A special case is that of East Kilbride where 16 managerial houses are let at £88 a year. At the time of the return only 1,366 houses or .37 per cent. were receiving rent rebates from local authorities. This figure compares with 10,334 or 5.3 per cent. in 1938. No one in the four cities was receiving a rent rebate.

The rents of local authority houses are fixed, and can be changed, by the authorities themselves, who do not require the approval of the Secretary of State for this purpose. Houses built by local authorities under the Housing (Scotland) Acts are not subject to the Rent Restriction Acts, and their rents can, therefore, be increased at the authority's discretion, but houses built by the Scottish Special Housing Association are subject to the Rent Restriction Acts, and once their rents are fixed they cannot be increased.

Firm's Hundredth House

THE HUNDREDTH HOUSE built for Edinburgh Corporation by George Wimpey and Co., Ltd., which stands on Langton-road in the West Mains Housing Estate, was officially handed over on September 26. Councillor M. A. Murray, convener of the Corporation Housing Committee, in taking it over, said this type of house was an entirely new form of construction for Edinburgh. He mentioned that the firm had handed over six houses within 17 weeks of their commencement at Drylaw Mains, and they were receiving 12 new houses a week on the two sites. The Corporation were building at more than double last year's rate, and this greatly expanded programme required the co-operation of all the contractors.

Housing Camps

A WARNING that Edinburgh Corporation would soon be faced with a "serious situation" in implementing a recent Department of Health ruling with regard to the emergency housing camps was given by the City Treasurer, Mr. J. G. Banks, at a meeting of the Welfare Committee on September 18. "The Government are apparently determined to get rid of these camps, and are pushing the whole of the financial and other responsibility on to the Corporation," he told members of the committee.

Treasurer Banks explained that at a conference in St. Andrew's House he had pleaded with the Joint Under Secretary of State, Commander T. D. Galbraith, M.P., to have departmental action in the matter delayed. The Minister was, however, adamant in the matter.

The regulation required that a hut must be demolished as it became vacant. At Duddingston alone at least 30 huts had disappeared in the course of a few months. As a result, room had to be found for homeless in Glenlockhart, and the time was approaching when there would be no more room available.

Representatives were appointed to a joint committee which is to consider the matter.

NEW BUILDINGS

Ayr.—Northern Ayr Hospital Board has prepared plans for 1953 to involve five hospitals. The Ayrshire Central will have a pavilion converted to cubicles, and a verandah added. At Buckredden Maternity a new labour room is proposed; Cuninghame House will have improved bathroom facilities. A new operating theatre at Kilmarnock Infirmary and verandahs for T.B. patients at Glenafton Hospital are among the other developments in mind.

Falkirk.—Plans to be prepared for reconstruction and additions to the premises of James Garshores

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& Sons, Maxwell-pl., completely destroyed by fire. Wilson and Wilson (F.), architects and quantity surveyors, 39, Vicar-st., Falkirk, Stirlingshire.

Glasgow.—Plans to be prepared for The Catholic Archdiocese of Glasgow, for alterations and additions at Merryland-st. The architects are Reginald Fairlie & Partners (F. & A.), 7, Ainslie-pl., Edinburgh.

Glasgow.—Plans in hand for alterations and additions for The Archdiocese of Glasgow, at the Catholic Church at Hillpark-st. The architects are Gillespie, Kidd and Coia (A.), Wellington-chbrs., Waterloo-st., Glasgow.

Glasgow.—Plans in the hands of their own architects for new extensions, etc., to the factory of Munro and Miller, Ltd., 240, Edminston-dr., Glasgow.

Glasgow.—Plans to be prepared for The Glasgow W.M. Trust, St. Vincent-st., for alterations and additions at Colbrook-st., Hillhead. The architects are John Keppie and Henderson and J. H. Cleave (F. & A.), 196, West Regent-st., Glasgow.

Glasgow.—Plans to be prepared for alterations and additions for insurance offices at St. Vincent-st., for which the architects are James Monro & Son (F.), 307, West George-st., Glasgow.

Glasgow.—Plans in the hands of their own architects for the erection at Pinkston-rd., Keppochhill, of large new buildings, by The Steel Reinforcement Co., Ltd., 19, St. Vincent-st., Glasgow.

Glasgow.—Plans in hand for alterations and additions for The B.P. & I. Co., Ltd., Upper Brook-st., Grosvenor-sq., London, at 68 to 92, Union-st., for which the architects are Bernard Thorpe and Partners (F.), 51, Queen-st., Edinburgh.

Glasgow.—Plans to be prepared for alterations and additions for the Radcliffe Church of Scotland, French, and Radcliffe-sts., Bridgeton, for which the architect is John S. Boyd (F.), 248, West George-st., Glasgow.

Greenock.—Plans in hand for a new scheme of 70 houses to be erected by The Scottish Special Housing Association, Ltd., at Larkfield, for which the architect is J. Austin Bent (A.), 15, Palmerston-pl., Edinburgh.

Peterhead.—Dean of Guild Court has granted a petition by Peterhead Town Council to erect 16 cottages at Blackhouse and 4 cottages at Clerkhill at an estimated cost of £40,000.

The Builder

FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

OCTOBER 16.

***†Southampton B.C.**—Classrooms, etc., at Deanery secondary school. Boro' A. Dep. £1. Tenders by November 11.

OCTOBER 17.

***Durham City C.**—12 aged persons' bungalows on Sunderland-rd. estate. City E. & A., Town Hall. Dep. £2 2s.

OCTOBER 18.

***†Halifax C.B.**—Waiting shelters, Cross Field bus station. B.E.

OCTOBER 20.

***Brighton B.C.**—New piggery and bull pens at Ovingdean Farm. Boro' E. & S., 26-30, King's-rd. Dep. £2 2s.

OCTOBER 22.

***†Durham C.C.**—Control centre at Butcers Bridge-rd., Jarrow. County A., Court-la., Durham.

***†Durham C.C.**—Control centre for civil defence at Roseberry-rd., Billingham. County A., Court-la., Durham.

***†Durham C.C.**—Civil defence control centre at Low Burn Quarry, Felling. County A., Court-la., Durham.

***†Durham C.C.**—Extensions to Stanley ambulance station. County A., Court-la., Durham.

***†Durham C.C.**—Ambulance headquarters at High Carr-hse., Framwellgate Moor. County A., Court-la.

***†Durham C.C.**—Ambulance station at Fishburn. County A., Court-la., Durham.

***†Durham C.C.**—Health centre at Peterlee. County A., Court-la., Durham.

OCTOBER 24.

***Berkshire C.C.**—Two police houses and garages at High-st., Crowthorne. County A., Wilton-hse., Parkside-rd., Reading. Dep. £2 2s.

***Gorby U.D.C.**—Two r.c frame buildings at new council depot. Clerk, Council Offices. Dep. £2 2s.

Marlborough and Ramsbury R.D.C.—2 houses and 6 bungalows at Farm-la., Aldbourne. S., Council Offices.

***†S.W. Reg. Hosp. Board.**—Improvements to Weston-super-Mare General Hospital. Regional A., S.W. Reg. Hosp. Board, 27, Tyndalls Park-rd., Bristol, 8. Dep. £2 2s. Tenders by November 12.

OCTOBER 25.

Belfast Harbour.—Construction of r.c. coaling wharf on the east side of the Herdman channel. Harbour Engineer, Harbour Offices, Belfast.

***Benfleet U.D.C.**—Installation of radiators in 34 houses at High-rd. and Hall Farm-rd. E. & S., Council Offices. Thundersley.

Clevedon U.D.C.—Conversion of "The Hawthorne," Elton-rd., Clevedon, into two dwellings. E. & S., The Council House. Dep. £2 2s.

Towyn U.D.C.—24 houses on three sites. Clerk, Council Offices, Towyn. Dep. £5 5s.

Wakefield R.D.C.—26 houses at Crofton. E. & S., Council Offices, 18, St. John's North, Wakefield.

***†West Ham C.B.**—93 flats and 24 houses at Butchers-rd, E.16. T. E. North, O.B.E., F.R.I.B.A., Boro' A. & Planning Officer, 70, West Ham-la, E.15. Dep. £2 2s.

OCTOBER 27.

***Chingford B.C.**—Public conveniences, Green Farm, Station-rd. S. J. Hellier, B.E. & S. Dep. £1 1s.

St. Helens T.C.—8 flats and 11 houses on Sutton housing estate, Weymouth-st. section. B. & W.E., Town Hall, St. Helens. Dep. £2 2s.

***†Torquay B.C.**—(a) 57 houses, (b) 62 houses at Sherwell Valley estate. B.S., Town Hall. Dep. £2 2s. per tender.

OCTOBER 28.

***Bradford City C.**—Six pairs of bungalows, Thorpe Edge estate, Idle. City E. & S. Dep. £2 2s.

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OCTOBER 29.

St. Austell R.D.C.—2 houses at Roche, Harmony-pl.; and 4 at St. Columb, Highfield-ave. E. & S., "Trevarna," 12, Carlyon-rd. Dep. £2 2s.

OCTOBER 30.

Leyland U.D.C.—36 houses at Wade Hall estate, contract 8. E. & S., Council Offices. Dep. £2 2s.

OCTOBER 31.

***Durham C.C.**—Two police houses at East Murton. A. to Police Auth'y., Court-la., Durham.

Ruislip-Northwood U.D.C.—14 shops and 28 flats in West End-rd., Ruislip. E. & S., Council Offices, Oaklands Gate, Northwood. Dep. £2 2s.

***Wembley Boro'.**—Buildings at Carpenters-park cemetery, near Watford. B.E. & S. Dep. £2 2s.

NOVEMBER 1.

***Bexley B.C.**—Section 1 of community centre at Falconwood-parade, Welling. B.E. & S., West Lodge, Broadway, Bexleyheath. Dep. £2 2s.

***†W. Sussex C.C.**—Temporary chemistry lab. at girls' high school, Chichester. County A., County Hall, Chichester.

NOVEMBER 3.

Rothwell U.D.C.—12 houses at Haigh-rd. site. R. Easdale & Son, architects, County-chbrs., Bradley-st., Castleford. Dep. £2 2s.

***Salford City C.**—Bowls pavilion, Ordsall-park. City E. Dep. £1 1s.

NOVEMBER 4.

***Camberwell B.C.**—8 dwellings at site No. 63 at Ondine-rd. Director of Housing, Town Hall, Peckham-rd., S.E.5. T.C., Town Hall. Dep. £2 2s.

Norfolk C.C.—District nurse's house with garage at West Walton. County A., 27, Thorpe-rd., Norwich.

***Swale R.D.C.**—14 houses, Stockers Hill-rd., Rodmersham. E. & S., 48, Bell-rd., Sittingbourne. Dep. £3 3s.

NOVEMBER 7.

***Chingford B.C.**—18 flats at Old Church-rd. estate, contract 4. B.E., Town Hall. Dep. £2 2s.

***Portsmouth City C.**—Reconstruction of Vosper, Ltd., war-damaged workshops, The Camber. City E., City Council-chbrs., 1, Clarence-parade, Southsea. Dep. £3 3s.

NOVEMBER 8.

***Dearne U.D.C.**—32 houses, Whin Wood estate. F. Baxter, E. & S. Dep. £2 2s.

NOVEMBER 10.

***Crewe B.C.**—80 houses on Wistaston-green estate, contract 515. Boro' E. & A., Municipal-bldgs. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

OCTOBER 17.

***†Malden and Coombe B.C.**—Clearance and erection of chain link fencing to corporation properties. B.E., Municipal Offices, Malden-rd., New Malden.

OCTOBER 20.

***Weymouth and Melcombe Regis B.C.**—Gas installations in 40 houses on Chapelhay estate. B.E. & S., 6, Pulteney-bldgs.

OCTOBER 25.

***Southall B.C.**—List of building contractors to undertake houses, bungalows and flats. B.E. & S.

OCTOBER 28.

***Esher U.D.C.**—Hot water installations in 81 houses, Cobham. E. & S. Dep £1 1s.

OCTOBER 29.

***Brierley Hill U.D.C.**—Internal painting and decorating approx. 378 houses. J. R. Moore (A.), Council Offices. Dep. £2 2s.

NOVEMBER 5.

***Luton Boro'.**—Demolition 35, 37, 39, 39a, b, c, d and e, Park-st. B.E. Dep. £2 2s.

NOVEMBER 30.

Tottenham B.C.—T.C. (Materials.)

ROADS, SEWERAGE AND WATER WORKS

OCTOBER 24.

Chertsey U.D.C.—Highway works in the district. E. & S., Council Offices, Guildford-st., Chertsey. Dep. £1 1s.

Chesterfield B.C.—Reconstruction of 700 yds. of Hasland-rd. and 430 yds. of service road. B.E., Town Hall. Dep. £2 2s.

OCTOBER 29.

Dartford B.C.—Resurfacing carriageways on sites 1 and 2b on Temple Hill neighbourhood unit. T.C., T.C.'s Office, High-st. Dep. £2 2s.

NOVEMBER 1.

***Windermere U.D.C.**—(a) Roads and sewers and (b) 180 houses and flats, Droomer Stile estate. Middleton and Jones, architects, 1, Queen-st., Lancaster. Dep. £3 3s. each.

NOVEMBER 10.

Sturminster R.D.C.—175,000-gall. reservoir at Okeford Fitzpaine Common, and 30,000-gall reservoir at Fifehead Magdalen, Dorset. A. J. Allen, F.R.I.C.S., Half Moon-st., Sherborne, Dorset. Dep. £3 3s.

Bolton B.C.—Roads and sewers on Roscow Fold housing estate. B.E. & S., Town Hall.

Bolton B.C.—Roads and sewers on Bailey-la. housing estate (lot I). B.E. & S., Town Hall.

GENERAL BUILDING WORK

(LONDON)

Dagenham.—SHOPS.—Layout plan for 5 shops and 22 flats with garage accommodation at James-ave. has been prepared by B.S. T.P. Com. recommend B.C. to approve.

Hammersmith.—FLATS.—A revised block plan submitted by H. Cadbury-Brown, A., 17, Clarges-st., W.1, proposing 25 flats to be erected at Flora-gdns. extension, has received Hsg. Sub-Com. approval.

Hammersmith.—FLATS.—A scheme for 18 flats at Sycamore-gdns. prepared by B. Webber, F., 39, Gordon-sq., W.C.1, has received approval with suggested amendments by Hsg. Sub-Com.

Hammersmith.—OLD PEOPLE'S FLATS.—Hsg. Sub-Com. have approved in principle preliminary sketch plans submitted by B.E. & S. for erection of 10 old people's flats and 5 maisonettes constituting block "B" of the Kelmscott-gdns. estate.

Hammersmith.—HOUSES.—T.P. Com. approved in principle a preliminary sketch plan submitted by B. Peake, A., 16, Bedford-pl., W.C.1, for the erection of 3 flats at 29-31, Starfield-rd., W.12.

Hendon.—DEVELOPMENT.—Hsg. Com. recommend B.C. to approve layout submitted by B.E. & S. for erection of 127 houses on Laurence-st. housing site.

Hendon.—DWELLINGS.—Proposals for a building estate consisting of dwelling houses in Brockley-ave., Edgware, made by A. W. Curton, Ltd., bldrs., Golf-hse., Stone-grove, have been approved by T.P. Com.

Hendon.—SYNAGOGUE.—T.P. Com. have approved the proposed erection of a synagogue, community hall and classroom at Edgware-way. Architects are Jaretzki and Caspari, 20, Dorset-sq., N.W.1.

St. Pancras.—FLATS.—A revised sketch scheme for Regent's Park area "B" has been prepared by T. Sibthorpe, F., 27, Grosvenor-pl., S.W.1, upon ministerial instructions. The layout has been approved by Planning Com. so that stage II application may be made to the Planning Authy. without delay.

St. Pancras.—DEVELOPMENT.—B.C. have approved the revised layout for Regent's-park area "A" scheme, east of Stanhope-st., submitted by F. Gibberd, F., 8, Percy-st., W.1. This provides for 231 flats and a public-house.

Westminster.—FLATS.—Hsg. Comm. recommend the approval by City C. of the erection of a block of flats and an estate hall on 41-43, Ebury Bridge-rd. for City C., and also the appointment of Messrs. Riches & Blythin, F/A., 16, Northumberland-ave., W.C.2, as the architects.

(PROVINCIAL)

Bedlington (Northumberland).—R.D.C. to apply for a loan of £28,678 for 16 more shops and eight flats. Surveyor, A. K. Dennis.

Birmingham.—Architects for erection of Tile Cross boys' gram. sch. are Jackson & Edmonds, 66, New-st., Birmingham.

Bolton.—B.C. are preparing scheme for 4,000 houses at Breightmet.

Brackley.—T.C. to approve plans for six houses at Westhill-gdns. and six at Westfield-ter.

Brierley Hill.—T.C. propose 90 houses, Swan-la., Kingswinsford; 75, Market-st., Kingswinsford; 60, Forge-la., Wallheath; 50, Harrison-rd., Wordsley; and 100, Lower Bromley, Pensnett.

Chester.—E.C. to include jnr. sch. at Blacon in 1953/4 building programme.

Chester-le-Street.—Plans have been prepared for pithead baths at Sacriston Colliery. N.C.B. Architects' Dept., is at Ashfield Tower, Gosforth, Northumberland.

Easington.—R.D.C. has approved a scheme and plans by their surveyor, R. Lumsden, for a holiday park at Grimden, with numerous amenities including shops and hotels. Est. cost, £250,000.

Gateshead.—Architects for a proposed warehouse at Windy Nook-rd., Sheriff Hill, for Windy Nook & District Industrial Co-op. Society, are the C.W.S. Architects' Dept., 90, Westmorland-rd., Newcastle-on-Tyne.

Halesowen.—T.C. to issue block licence for 38 houses to A. J. Mucklow, Ltd.

Hartlepool.—North-Eastern Railway Cottage Homes and Benefit Fund are planning six houses at Hartlepool. Architect, A. Newton Thorpe, Architects' Dept., Civil Engineers' Office, British Railways, York.

Hoole.—Cheshire E.C. are planning erection of a College of Further Education.

Jarrow (Co. Durham).—T.C. to build a further 60 houses at Simonside.—Fennell & Co., Bridge End-chbrs., Chester-le-Street, Co. Durham, have submitted outline plans on behalf of Northern General Transport Co., Ltd., Bensham, Gateshead, for a proposed bus stn. in Station-st.—R. Deuchar, Ltd., Newcastle-on-Tyne, are planning conversion of Monkton Lodge, Springwell-rd., into a public-house, for which architects are T. A. Page, Son & Hill, 75, King-st., South Shields.

Leigh.—T.C. propose a bus stn. in town centre.

Manchester.—Work is hoped to commence shortly on extensions to arts library at Manchester University. Architects, T. Worthington & Sons, Oxford-rd., Manchester.—City A., L. C. Howitt, to prepare detailed scheme for crematorium at Blackley.—E.C. appointed the following as quantity surveyors:—Moss Nook cty. sec. sch., T. Sumner Smith & Partners; Oldwood cty. sec. sch., Brown & Spencer; Newton Heath Technical, Lay & Partners. (All of Manchester.)—E.C. propose College of Further Education at Water-st.

Middlesbrough.—E.C. is to include in its building programme for next year a £170,000 plan for new Longlands County College.—Next year's programme will also include Middle Beck No. 2 cty. sec. sch., to cost £160,000.—E.C. has approved sketch plans for new Berwick Hills No. 1 cty. prim sch., which will cost about £88,000. Ed. A., P. R. Middleton, Education Offices, Middlesbrough.

Newcastle-on-Tyne.—C. A. Parsons & Co., Ltd., electrical plant contractors, Shields-rd., Newcastle, propose factory extensions.

Newcastle-on-Tyne.—B.B.C. broadcasting station, New Bridge-st., is to be altered and enlarged. Plans by B.B.C., Portland-pl., London, W.1.—Bradleys, Ltd., Shields-rd., are to extend their premises. Architects, Stephenson & Gillis, North-st., Saville-row, Newcastle.—City Council propose to adapt the old Princess Mary Maternity Hospital into an occupational centre and emergency housing accommodation. Est. cost, £11,400. Plans by City A., G. Kenyon, 18, Cloth-market, Newcastle.

Newton Aycliffe (Co. Durham).—It is expected that work will begin next year on construction of first Church of England at the new town of Newton Aycliffe.

Oldham.—E.C. to erect 11 additional classrooms and sanitary facilities at new prim. sch., Limehurst.—B.C. to prepare details for further 60 houses.

Otley.—New div. police H.Q. included in 1953-4 programme (£60,000 est.).

Ramsbottom.—U.D.C. approved lay-out and plans for 25 houses and four flats at Pin Meadow, Stubbins. Plans by S., E. M. Richardson.

Salford.—E.C. appointed Cruickshank & Seward, 16, Princess-st., Manchester, as architects for prim. sch. on site of Broughton High sch.—Bradford Dyers' Association, Ltd., propose rebuilding war-damaged premises at Meadow-rd.

Sedgley (Staffs).—U.D.C. seek Ministry approval for development of Monument-la. housing site. Architect, R. R. Young, 3, Newhall-st., Birmingham.

Sheffield.—T.C. propose motor bus garage at Handsworth-rd.—To lease site at Solly-st. to C. R. Denton Steel & Tool Co., Ltd., for erection of workshops and offices; site at Upper Allen-st. to Gilbow Tool & Steel Co., Ltd., for light engineering works.

Skelmersdale.—U.D.C. received approval for 34 houses at Windrows Farm estate, at £43,010.

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South Shields.—Corpn. Children's Com. has resubmitted to T.C. a proposal to obtain tenders for a children's home at Simonside.—Boro' E., John Reid.—M.O.E. has approved revised plans for the first instalment of the Marine and Technical College scheme.

South Shields.—E.C. has been authorised to carry out, next year, enlargement of the gram. sch. for girls. Architects, Page, Son & Hill, 75, King-st., South Shields.

Stockport.—A new nurses' block to cost about £50,000, an out-patients' dept. and physiotherapy unit, are being considered at Stepping Hill Hospital.

Stratford-on-Avon.—T.C. seek loan of £18,700 for 16 flats at Henley-in-Arden; to negotiate with Smith & Unett, Ltd., for 16 houses at Tiddington.

Sunderland.—Fordham & Co., pre-packers, Pallion estate, are to extend their factory.

Sunderland.—M.O.E. has sanctioned the building, next year, of a cty. inf. sch. at Hylton Red House estate and a temporary sch. at Castletown, for E.C. Boro' A., H. C. Bishop, Grange House, Stockton-rd., Sunderland.—British Railways are planning to spend £30,000 on remodelling south end of Sunderland stn.—M.O.F. has approved erection of an abattoir at Sunderland.—M.O.W. is dealing with arrangements for the construction. Cost, it is understood, will be £160,000.

Tynemouth.—B. Peel, Ltd., builders, East Mill Works, North Shields, have applied for licences to erect 10 houses and two houses in flats in Hotspur-st.—Boro' E., 16, Northumberland-sq., North Shields, has been asked by E.C. to complete plans for proposed Monkhouse cty. prim. sch. It is proposed to commence building next spring.

Upholland.—C. of E. authorities propose sch. at Back-la.

Wakefield.—R.D.C. to prepare scheme for 26 houses at Stag-la. estate, Crofton.

Wallasey.—E.C. to prepare working drawings for proposed Birket-ave. prim. sch.

Walsall.—Blakenhall Working Men's Club propose new club premises (£16/18,000 est.).

Warrington.—E.C. received approval for three additional classrooms at Oakwood-ave. sec. tech. sch. for girls.—E.C. received approval for inclusion of girls' high sch., Loushers-la., in 1953/4 programme (£160,000 est.).

Whaley Bridge.—U.D.C. to erect shops at Elnor-la. and Williamson-rd., and prepare housing layout for development of land between Elnor-la. and Elnor-ave. estates. Architect, Mr. Turner (of Cordingley and McIntyre), Manchester.

Whitley Bay.—U.D.C. is to purchase 10 acres of housing land at Seaton Sluice. Surveyor (E. Roberts) has prepared plans for eight houses on the Foxhunters' estate; three blocks of flats on Seatonville estate; and 20 houses near Whitley football ground.—R. A. Gofton & Sons, Monkseaton, have received licences for another six houses.

Wolverhampton.—B.C. to issue further block licence for 40 houses to Wm. Whittington, Ltd., Powlett-st., Wolverhampton.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Abingdon.—Erection of 148 dwellings on the North Hinksey estate at Dean Court, Botley, Oxford, for R.D.C. (109): *F. J. Minns & Co., Ltd., Oxford, £139,457. (48), *Mr. A. J. Robey, Rowstock, £65,954.

Erection of 38 houses for R.D.C.: (24) *H. W. Poulton, Drayton, Berks, £29,795. (14) *R. D. Davies, £18,970.

Abingdon.—Erection of 18 houses and garages at Sellwood-rd., for B.C.: *Messrs. Field Davis, £40,909. Erection of 120 houses and old people's dwellings on the Wildmoor estate, for B.C.: *Unity Structures, Ltd., £185,202.

Alton (Hampshire).—Erection of 16 houses at Dunsell's-la., Ropley, for R.D.C.: *W. H. Crispe & Son, £26,067.

Altrincham.—Adaptation of "Ellerslie," as a short stay receiving home, for Manchester T.C.: *W. Fearnley & Son, Ltd., Salford.

Atherstone.—48 houses at Coronation-ave., Polesworth, for R.D.C. H. Jepson, architect, Midland Bank-chbrs., Nuneaton: *Abraham Pursh ouse & Sons, Ltd., Rookery-st., Wednesfield, Staffs, £60,991 (subject to Ministerial approval).

Ayrshire.—Erection of new nurses' home at New Cumnock's Glenafton Hospital, for the Board of Management, Northern Ayrshire Hospital Brd., Kilmarnock. The architects are James Steel & Hay (F.), 13, West George-st., The Cross, Kilmarnock. Quantity surveyor is Thomas C. Stewart, F.R.I.C.S., Clydes Bank-chbrs., Kilmarnock: *G. & W. Rome, Ltd., Kilmarnock and Glasgow.

Birmingham.—Erection of Longbridge-la. prim. sch., for E.C.: *C. Bryant & Son, Ltd., 65, Whitmore-rd., Birmingham, £22,890.

Brackley.—18 houses and two shops with flats over at Waynflete-ave., for T.C.: *F. A. Hedges, Syresham, Northants.

Bromsgrove.—Extensions to printing works of Bromsgrove and District Messenger, High-st.: *E. Fletcher (Builders), Ltd., 34, High-st., Kingswinford.

Chester.—Further 80 houses at Blacon estate, for T.C.: *Thos. Warrington & Sons, Ltd., Parkdr., Hoole, £96,568.

Derby.—Erection of Humbleton sec. mod. sch., for E.C.: *Ford & Weston, Ltd., Osmaston-rd., Derby, £145,499.

Durham.—Erection of a gram. and tech. sch. at Crossgate Moor, for Cty. Ed. Com.: *Leslie & Co., East Mount-rd., Darlington.

Fifeshire.—Plans prepared for the Glenrothes Development Corporation's new scheme of houses and shopping centre, and also community hall, which are to be erected at Woodside. Peter Minto (A.), Development A., Corporation Offices, Woodside, Glenrothes, Markinch. Excavation, brick, building, concrete and allied works: *Whatlins, Ltd., Glasgow (other contracts let).

Gateshead.—Erection of 28 houses at Low Fell, for Corporation: *J. Clark & Son (New Seaham), Ltd., New Seaham, Seaham Harbour, Co. Durham.

Gateshead.—Alterations and a new shop front to business premises in High-st., Gateshead: *A. D. Bird, 491, Scotswood-rd., Newcastle.

Glasgow.—Plans prepared for extensions to The Moorepark Tube Works of Munro & Miller, Ltd., Edminston-dr.: *The Kelvin Construction Co., Ltd., Possilpark, Glasgow, N.

Glasgow.—Erection of housing scheme at Garthanlock, for the Corporation. Archibald G. Jury (F.), architect, Housing Offices, The Trongate, Glasgow. Area "O," 114 houses: *James Laidlaw & Sons, Ltd., Bridgeton, Glasgow, £193,516; Area "R," 165 houses; Area "Q," 135 houses; Area "P," 81 houses: *L. K. MacKenzie & Partners, Ltd., Glasgow, £301,242, £240,048 and £146,689.

Glasgow.—Erection of Balarnock public sch. at sight No. 6, for Corporation. John MacNab (F.), architect, 129, Bath-st., Glasgow: *Hugh Bradley, Ltd., Barrhead.

Hendon.—40 flats at Cricklewood-la., Childs Hill, for T.C. J. L. Pelham, B.E. & S., Town Hall: *Perrys (Ealing), Ltd., 75, Uxbridge-rd., W.5, £63,509.

Hexham.—Conversion of No. 7 South-park into hostel, for Northumberland E.C. Cty. A., C. C. Brown, County Hall, Newcastle-on-Tyne: *T. Charlton & Sons (Newborough), Ltd., Newborough, £7,830.

Keighley.—36 houses at Calver-ave. estate, for B.C.: *James Wharton, Ltd., Ingrow Bridge, Keighley, £50,056; six houses at Sun-st. estate: *T. W. Bell, Fleece-st., Keighley, £7,832.

Kilmarnock.—Erection of new houses at Montgomerie-st., for Corporation. N. S. Sutherland, F.I.A.A. & S., architect, Municipal-chbrs., Kilmarnock. Excavation, brick, building, concrete and allied works: *William Cairns, Irvine, £7,930 (other contracts let).

Lanarkshire.—Plans prepared for bacon-curing factory, slaughter-house and other buildings at East Kilbride, on the Brackonhall site. Rennie & Kirkwood, architects and civil engineers, 59, Bath-st., Glasgow: *Crowley, Russell & Co., Ltd., Glasgow.

¶London (Air Ministry).—Contracts to value of £500 or over for week ended October 4:—

General maintenance work: E. Clarke & Sons, Ltd., Melton Mowbray, Leics; Davidson & Co., Aberdeen; J. F. Booth & Son, Ltd., Banbury, Oxon. *Re-sheeting hangars and sheds, etc.*: Cambridge Erection Co., Ltd., Cambridge. *Reconditioning of caterpillar tracks*: Peter Woozley, Ltd., Thetford, Norfolk.

L.C.C.—Construction of 157 flats at Milne estate, Woolwich:—

Gee, Walker & Slater, Ltd., Westminster	£387,267
A. T. Rowley (London), Ltd., Tottenham	372,410
Stewart & Partners, Ltd., St. Marylebone	371,650
M. J. Gleeson (Contractors), Ltd., North Cheam	370,669
Y. J. Lovell & Son, Ltd., Paddington	369,180
Geo. Parker & Sons, Ltd., Camberwell	368,811
James Longley & Co., Ltd., Crawley	368,756
Thomas & Edge, Ltd., Woolwich	365,679
Rowley Bros., Ltd., Tottenham	365,642
Halse & Sons, Ltd., Woolwich	360,796
A. Roberts & Co., Ltd., Westminster	357,708
*Rush & Tompkins, Ltd., Sidcup	349,867

The comparable estimate of the appointed architects, Adie, Button & Partners, is £386,980.

Construction of a five-storey block of 27 flats with five shops on the ground floor, and other work at Cumming estate, Islington:—

S. R. Bryett, Dagenham	£73,195
Allen Fairhead & Sons, Ltd., Enfield	72,200
Patman & Fotheringham, Ltd., Islington	72,111
E. A. Russell, Ltd., Walthamstow	71,881
Frank Batty & Smith, Ltd., Paddington	71,750
Charles S. Foster & Sons, Ltd., Loughton	70,802
Thomas & Edge, Ltd., Woolwich	68,868
H. J. Walker & Sons, Ltd., Bristol	65,937
*Rowley Bros., Ltd., Tottenham	64,932

The comparable estimate of the director of housing and valuer is £66,917.

Erection of a cty. sec. sch. with 900 places at Tulse Hill:—

Kirk & Kirk, Ltd., Wandsworth	£329,960
E. Clarke & Sons, Ltd., Addlestone, Surrey	322,950
James Carmichael (Contractors), Ltd., Wandsworth	321,635
Rice & Son, Ltd., Lambeth	319,622
C. P. Roberts & Co., Ltd., Holborn	319,341
Thomas & Edge, Ltd., Woolwich	317,736
Hall Beddall & Co., Ltd., Lambeth	309,263
F. & H. F. Higgs, Ltd., Lambeth	308,497
J. Garrett & Son, Ltd., Wandsworth	307,543
A. T. Rowley (London), Ltd., Tottenham	306,964
Tersons, Ltd., Finsbury	304,565
Wilson Lovatt & Sons, Ltd., Westminster	303,980
Gee, Walker & Slater, Ltd., Westminster	302,304
Gilbert-Ash, Ltd., Westminster	298,676
*Rush & Tompkins, Ltd., Sidcup	296,681

The comparable estimate of the firm of architects in private practice responsible for the work is £296,408.

War-damage repairs and improvements to Clapham Manor cty. prim. sch.:—

Gee, Walker & Slater, Ltd., Westminster	£47,022
Patman & Fotheringham, Ltd., Islington	43,875
A. J. Wait & Co., Ltd., Wallington	43,545
Trollope & Sons (London), Ltd., Westminster	42,856
F. R. Hipperson & Son, Ltd., Broad Street-pl., E.C.2	41,824
Triggs & Co., Ltd., Wandsworth	41,799
W. J. Marston & Son, Ltd., Fulham	39,925
F. Troy & Co., Ltd., Southwark	39,767
J. Garrett & Son, Ltd., Wandsworth	39,609
Sloggetts (Contractors), Ltd., Kensington	38,517
Bridge, Walker, Ltd., Lambeth	38,426
*Clarke Barton & Co., Ltd., Belmont (†After correction.)	†37,621

The comparable estimate of the architect in private practice responsible for the work is £39,300.

Erection of Strand comprehensive high sch.:—

Sir Robert McAlpine & Sons, Ltd., Westminster	£56,731
Tersons, Ltd., Finsbury	56,479
Gee, Walker & Slater, Ltd., Westminster	56,307
A. E. Symes, Ltd., Stratford	55,420
C. Miskin & Sons, Ltd., St. Albans	53,714
Kirk & Kirk, Ltd., Wandsworth	53,133
M. J. Gleeson (Contractors), Ltd., Cheam	52,507
*Leslie & Co., Ltd., Kensington	51,302

The architect's comparable estimate is £47,209.

L.C.C.—The undermentioned contracts exceeding £2,500 in value have been placed by L.C.C. during period September 12 to October 5:—

Manufacture of glazed wall cladding for Strand and Putney Park-la. comprehensive high schools, Hills (West Bromwich), Ltd. Play-space construction at Redriff cty. prim. sch., Bermondsey, George Bell & Sons, Ltd. Erection of a schoolkeeper's house for Charles Dickens sch., Southwark, Charles H. Graft, Ltd. Erection of a schoolkeeper's house for Peckham sec. girls' sch, Greenaway & Son, Ltd, Erection of prefabricated dining hut at Catford cty. sec. boys' sch., S. A. Thorne. Formation of woodwork and metalwork rooms at Charlton sec. boys' sch., Greenwich, A. W. Cailes & Sons, Ltd. Electrical installation at Monson cty. prim. sch., Deptford, F. Lawrence. Reinstatement after fire damage of pavilion at Rose-hill playing field, Morden, Surrey, T. Ringham & Co., Ltd. Reinstatement of roofs after fire damage at Ennersdale sch., Lewisham, Luckett & Son, Ltd. Construction of a handicraft centre at West Norwood Cty. Sec. Sch., Lambeth, Norman Wright (Builders), Ltd. Construction of foundations and certain site work for Strand comprehensive high sch., Lambeth. Leslie & Co., Ltd. War damage repairs at school buildings and playsheds at Virginia cty. prim. sch., Bethnal Green, J. A. Porter & Co., Ltd. War damage repairs at Hamond-sq. cty. prim. sch., Shoreditch, James Shackell & Co., Ltd.

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¶London (M.O.W.).—Contracts let by M.O.W. during week ended September 27:—

London: Royal Hospital, Chelsea, External painting, Alfred Bagnall & Son, Ltd., 141, Uxbridge-rd., W.12; Site No. 2, Building No. 32, Kidbrooke Park-rd., S.E.3, Internal decorations, Sykes & Son, Ltd., 8, Essex-st., W.C.2; South-Eastern District Office, Southwark, S.E.1, Extensions and alterations, Higgs & Hill, Ltd., South Lambeth-rd., S.W.8; Clarence House, S.W.1, Alterations, Y. J. Lovell & Son, Ltd., 6, Bathurst-st., W.2; G.P.O., 14-15, Bridgewater-sq., E.C.1, Alterations and additions, A. Roberts & Co., Ltd., 79, Eccleston-sq., S.W.1.

Essex: Gt. Saling Airfield, Braintree, Repairs to roof of T.2 hangar, Sinclair Steel Erectors, Ltd., 590, Stretford-rd., Manchester 16. *Hertfordshire*: Public Records Offices, Ashridge Park, Hertford, External decorations, E. P. Gilkes & Sons, Ltd., 6, Castle-st., Aylesbury, Bucks. *Yorkshire*: Head Post Office, Northumberland-st., Huddersfield, Alterations and extensions, J. Wimpenny & Co., Ltd., Spurn Point, Linthwaite, nr. Huddersfield.

¶London (War Dept.).—Contracts placed by W.D. during week ended September 27:—

Yorkshire: Building work, Allton & Co. (Contractors), Ltd., Ripon. *Warwickshire*: Bituminous treatment to sheds, All Weather Mechanical Grouting Co., London, S.W.1. *Pembrokeshire*: Fencing, G. Argent & Co., Pembroke. *Warwickshire*: Roof repairs, T. H. Kenyon & Sons, Ltd., London, W.9. *Flintshire*: Road work, The Apex Asphalters, Ltd., Stockport. *Glamorgan*: Miscellaneous, Bert King (Builders), Ltd., Barry. *Hampshire*: Hutting & concrete structures, H. G. Ross & Sons, Ltd., Netley. *Hampshire*: Bituminous treatment to hutting, Bitumen Industries, Slough. *Gloucestershire*: Building work, H. J. Maunders, Bristol 2. *Kent*: Concrete structures, J. E. Webb & Co., Ltd., London, S.E.9: Repairs to sea wall, Kinman (Contractors), Ltd., London, W.6. *Sussex*: Miscellaneous, R. Corben & Sons, Ltd., Hastings; miscellaneous, Y. J. Lovell & Sons, Ltd., Horsham.

Manchester.—Additional cloakrooms and sanitary accommodation at Green End jun. boys' sch., for E.C.: *J. E. Stephenson & Co., Ltd., Manchester (in lieu of previous tender).

Manchester.—Erection of Peel Hall C.P. sch., for E.C.: ‡Gilbert Ash, Ltd., London; alterations and additions to form extensions at Oswald-rd. C.P. sch.: *C. Musker Bros., Ltd., Swinton; seven shops, seven maisonettes and seven garages at Northern Moor N.W. Sub Centre, for T.C.: *Hampson & Kemp, Ltd., Manchester; seven shops, seven maisonettes and seven garages at Brooklands S.E. Sub Centre: *G. & J. Seddon, Ltd., Little Hulton, nr. Bolton; five houses at Brooklands (Contract 157), for T.C.: *F. Gannon & Son, Ltd., Manchester.

Newcastle-on-Tyne.—Work in hand on alterations to the accident and casualty department at the Royal Victoria Infirmary. Architects, Curtis Green, Son & Lloyd, 5, Pickering-pl., London, S.W.1: *J. & W. Lowry, Corporation-st., Newcastle.

Newcastle-on-Tyne.—Erection of 14 houses in Conway-dr., Newcastle-on-Tyne. Architects, Marshall & Tweedy, Grainger House, Blackett-st., Newcastle: *Williamson Bros., Pillars-yard, High-st., Gateshead.

North Shields.—Erection of premises in Verne-rd., for Newcastle Savings Bank, Ltd., Architects, Marshall & Tweedy, 36, Blackett-st., Newcastle-on-Tyne: *Hastie D. Burton, Ltd., King-st., North Shields.

Northumberland.—Erection of additional classrooms at Alnwick cty. mixed, Cramlington cty. prim., Morpeth cty. mixed, and Bedlington gram. schs., for E.C. Cty. A., C. C. Brown, County Hall, Newcastle-on-Tyne: *J. G. Green & Sons, Butts, Warkworth, Northumberland.

Oldham.—Conversion of Ward M2 as a chest clinic at Oldham & District Hospital, for Reg. Hospital Brd.: *Emmanuel Whittaker, Ltd., Oldham, £5,999.

Orrell.—12 houses at Kitt Green site, for U.D.C.: *Taberner & Moorfield, Loch-st. Saw Mills, Orrell.

Otley.—Further 12 houses at Weston-la. estate, for U.D.C.: *Tom Smith (Otley), Ltd., Otley, £14,187.

Prescot.—Erection of 48 houses on Shaw-la. housing site, for U.D.C. Gornall, Kelly & Partners, architects, 8, Hardshaw-st., St. Helens: *D. A. Ablett & Sons (1938), Ltd., Sovereign-rd. Saw Mills, Wigan.

Rochdale.—Sanitary annexes at the infirmary, for Reg. Hospital Brd.: *Haldean Building Co., Ltd., Middleton Junction, Manchester, £7,760.

Salford.—Hutted classrooms at Trafford-rd. girls' sch., for E.C.: *D. Walton & Co., Ltd., Salford, £4,490.

Sedgley.—Six houses at The Vista, for U.D.C.: *Tomlinson Bros., Ltd., Bilston-st., £9,336.

Shardlow.—26 houses at Station-rd., for R.D.C.:

*Pearman & Wade, Ltd., 8, Autumn-grove, Chaddesden, £33,029.

Sheffield.—Additional classrooms at First Hill cty. inf. sch., for E.C.: *Hill & Roberts, Ltd., Sheffield. £12,345.

Sheffield.—Houses at Hackenthorpe estate, for T.C.:—140 at sections 31 & 35, 36 & 37: *Bailey & Martyn, Ltd., £197,997; 84 at sections 39 & 40: *Ackroyd & Abbott, Ltd., £117,782; 56 at section 32: *W. Memmory & Sons, Ltd., £77,868; 50 at section 33: *Melling Bros., Ltd., £72,261; 44 at section 34: *A. G. Redmile, Ltd., £61,037; 24 at section 38: *Curtis Redmile & Son, Ltd., £33,304.

South Shields.—Alterations to shop premises in Frederick-st., for Jarrow & Hebburn Co-op. Society, Ltd.: *C.W.S. Building Dept., West Blandford-st., Newcastle-on-Tyne.

South Shields.—J. Readhead & Sons, Ltd., shipbuilders and repairers, South Shields, are to enlarge their dry dock: *J. G. Thompson & Sons, 28, Fowler-st., South Shields.

Stourport-on-Severn.—Erection of six shops with flats and maisonettes at Walshes Farm estate, for U.D.C. Architects and quantity surveyors, Godwin, Clist and Greenway, F/F.R.I.B.A., F.R.I.C.S., Bankbldgs., Kidderminster. J. Herbert Smith (Kidderminster), Station Hill, Kidderminster, £22,031 (subject to M.O.H. & L.G. approval).

Tipton.—66 houses at Park-la. West estate, for B.C.: *Austin & Co., Daw End-la., Rushall, £94,046; 12 flats at Gospel Oak estate: *H. & R. L. James, 72, Holyhead-rd., Wednesbury; four flats at Upper Church-la.: *J. Felton, 8, Aston-rd., Dudley.

Tynemouth.—Erection of 180 houses in 30 blocks of six houses each. Plans by the Boro' S.: *Leslie & Co., East Mount-rd., Darlington.

Wallasey.—Houses for B.C.:—22 at site P6 Reedsla.: *J. Tate & Sons, 241, Wallasey Village, £37,268; 12 at site P7 Buxton House: *J. Rawsthorne & Co., Belvedere Sawmills, £18,385; 10 at site P6 Easterley ext.: *C. C. Davies & Sons, St. Olaf, Reedville-grove, Moreton, £14,516,

Wem.—24 houses, eight flats and six garages at New-st. site, for U.D.C.: *J. H. Grindall & Sons, 48, Aston-st., Wem, £44,968 (in lieu of previous tender).

West Hartlepool.—Construction of bottling factory at Stranton, for J. W. Cameron & Co., Ltd. Architect, Edwin M. Lawson, Barras-bldgs., Barras Bridge, Newcastle-on-Tyne: *Lazenby & Co., Ltd., Ferryhill.

Westmorland.—Four flats at Westmorland Sanatorium, Meathop, for Manchester Reg. Hospital Brd.: *G. F. Postlethwaite, Grange-over-Sands.

Wolverhampton.—Houses for B.C.:—204 at Rough Hills estate: *Nathan Hyde, 6, Claremont-rd., Sedgley, £238,631; 256, Wednesfield No. 2 estate: *Wolverhampton Builders' Committee, £322,602; 201, Tettenhall No. 3 estate: *Direct Labour, £243,998; 112 at Plascom estate: *A. F. R. Godrey & Co., Ltd., 46, Waterloo-rd., Wolverhampton. (All subject to M.H. approval.)

Yarmouth.—Erection of 137 flats and maisonettes in five contracts in Reconstruction Area No. 1, Middlegate-st., for B.C. H. F. Dyson, M.B.E., M.I.Mun.E., Borough Engineer, 8a, Queen-st. Quantities by Davis, Belfield and Everest, Norwich:

Contract "A," *Harris and Andrews, Alpha-rd., Gt. Yarmouth	£27,243
Contracts "B" and "E," *H. A. Holmes & Sons, South Ice House-hill, Gorleston-on-Sea	84,090
Contract "C," *E. F. Lamb, Estcourt-rd., Gt. Yarmouth	50,778
Contract "D," *J. Cooper, "Panama," Burgh-rd., Gorleston-on-Sea	48,972

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